Consumer Reports

FACTS YOU NEED BEFORE YOU BUY

VOL. 12, NO. 1 Published Monthly by Consumers Union JANUARY, 1947

Photoelectric Light Meters for Photography

Automobile Jacks: Bumper and Axle Types

Cleaners for Walls and Woodwork

Preview of Electric Washers

Spot and Stain Removers

Juice Extractors

A Tax Program

The Sinuses

CONSUMER REPORTS

Volume 12, No. 1 — January, 1947

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CONSUMERS UNION is a non-profit organization chartered under the Membership Corporation Laws of New York State. Ratings of products represent the best judgment of staff technicians or of consultants in university, governmental or private laboratories. Samples for test are in practically all cases bought on the open market by CU's shoppers. Ratings are based on laboratory tests, carefully controlled use tests, the opinions of qualified authorities, the experience of a large number of persons, or on a combination of these factors. Even with rigorous tests, interpretation of findings is a matter on which expert opinion often differs. It is Consumers Union's pledge that opinions entering into its evaluations shall be as free from bias as it is possible to make them.

Tax Reductions Where Needed

It isn't only in buying drugs, cosmetics and other products that one must avoid taking labels and claims at face value. The same skepticism that informed consumers have learned to use in appraising products must constantly be called upon in examining legislative proposals.

Take for example, Representative Knutson's proposal for an across-the-board 20% slash in income taxes. On the face of it, this looks eminently proper. If taxes are going to be cut, make it fair and square, and give everybody the same percentage off his tax bill.

One doesn't have to look far, however, to discern the flaws. As is pointed out in the discussion of income taxes beginning on page 26 of this issue, a family of four with a $3000 income would save $27.40 through Congressman Knutson's generosity, whereas the person with a $100,000 income would save $12,460.

Insofar as the taxpayer is concerned, a tax cut is an increase in income, with the same effect on purchasing power and living standards as a wage or salary increase. While both Family 1 with $3000 income and Family 2 with $100,000 income would save 20% on their tax bills, their savings in terms of percentages of income would be of a different order. Family 1 would have an added income of just about 1%; Family 2 would have its income increased by 33%.

There are no extra dollars rattling around the Government's vaults. The nation's debts and expenditures warrant a reduction in taxes only in terms of the maintenance of decent living standards for the American people and the bolstering of the nation's economy against a depression that now appears inevitable. On both counts, maintenance of the purchasing power of the lower- and middle-income families is necessary. Adding millions of dollars to the income of top-bracket taxpayers will only add to already swollen savings; this is not where living standards and purchasing power need support.

The tax proposals which CU presents in this issue would save more for the wealthy than for the less well off; but they would keep the differences within reason. For example, removal of excise taxes except on luxuries would save most for those who spend most, but they would help those so far down on the income scale that a cut in income taxes would help them not at all. An increase of a thousand dollars in a family's exemptions would save a middle income family about $200 while it would save the highest bracket family more than $800. But this is more equitable than the relative savings Mr. Knutson wants.

If we are to have tax cuts, then let's have them where they are needed.

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Photographic Exposure Meters

Tests reveal serious faults in some photoelectric meters.

What is the best photoelectric exposure meter made for amateur photographers? Results of tests conducted for CU by a laboratory specializing in light and electrical measurements give the blue ribbon to the *Weston Master II*, with the *General Electric* meter definitely in second place.

The *Weston* meter ranked first among the seven makes tested for sensitivity and general accuracy under ordinary conditions of use. The *General Electric* was almost as accurate under normal conditions, but its accuracy suffered more than the *Weston's* under conditions of extreme heat or cold. In a high-humidity test, one of the three *General Electric* meters tested was seriously affected by the humidity, and one of the three *Weston* meters was affected to a lesser extent.

Of the five other makes tested, the *DeJur Autocritic* was rated next to the *General Electric*, with the smaller *DeJur* Model 5B poorest (and "Not Acceptable") in over-all performance. The other meters considered "Acceptable" were the *Skan* and the *Hickok Duplex*. The second meter on the "Not Acceptable" list is the *Electrophot* Model 14-A.

TESTS PERFORMED

Most of the tests were designed to determine the conformance of the meters to the "Specification for Service Model Photographic Exposure Meters (Reflected-Light, Photoelectric Type)," adopted by the American Standards Association in 1944 as an "American War Standard." Since the standard was intended to cover meters for military rather than civilian use, however, it was not followed in its entirety.

The Weston Master II rated as the best of the photoelectric meters tested.

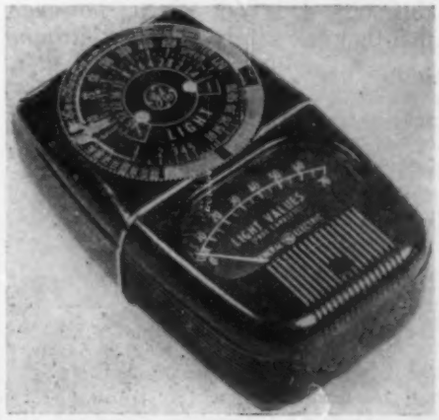
The meters were tested for accuracy of calibration, color sensitivity, cell fatigue, angle of "view" (acceptance), effect on accuracy of high and low temperatures and high humidity. Additional tests were made in CU's laboratories for resistance to mechanical shock, and the meters were examined for performance of zero adjuster, pointer balance and damping, parallax between pointer and scale, size, weight, shape, ease of manipulation and adequacy of manufacturer's instructions.

The most significant test was that for accuracy of calibration. For this test, the meters were exposed under standard conditions to a standard-color variable-intensity light source. The brightness equivalent was determined for each major scale marking, and the accuracy of calibration computed from the brightness figures. The standard permits maximum deviation of about 24 percent in indicated exposure time for the upper two-thirds of the scale. Only the *Weston, General Electric,* and the *DeJur* 50A passed this tough requirement.

A humidity chamber was used to determine the effect of a damp atmosphere on the meters. The reading of the meters to a known brightness was first ascertained. The meters were then placed in a chamber which was maintained for six hours at a temperature of 131° Fahrenheit with 90 percent relative humidity. The chamber was then allowed to cool for 18 hours, the humidity rising during this time to 100 percent. This entire cycle was then repeated, after which the meters were removed from the chamber and brightness measurements again made. The brightness measurements were repeated after four days in which the meters were kept at room temperature to check for residual effect of the exposure to high humidity. The standard permits a maximum deviation after the four-day interval of about 35 percent in indicated exposure time over the upper two-thirds of the scale. CU checked at one point and found that only the *Hickok* and *DeJur* 50A meters passed successfully with all three samples; the *Electrophot* was the only one on which none of the samples passed.

To test for the effect of temperature changes, the meters were placed in a chamber where they were kept at a constant temperature of 131° F. for 16 hours. The meters were then kept at fixed room temperature for eight hours, after which they were placed in a refrigerating chamber at 31° F. below zero for six hours. The complete hot-and-cold cycle was repeated after 1 hour at fixed room temperature and completed by 11 hours at fixed room temperature. Readings of all of the meters at a fixed brightness were taken at the various stages of the cycle to determine the effects of the heating and cooling. The standard permits a deviation of about 24 percent in indicated exposure time at maximum temperature, about 35 percent at lowest temperature and a residual effect after completion of the hot-cold cycles of about 24 percent over the upper two-thirds of the scale. Only the *Weston* and the *Electrophot* met all three of these temperature requirements. Neither of the two *DeJur* models nor the *Hickok* met the requirement during the hot-and-cold periods but they all recovered to the required degree. The *Skan* and the *General Electric* were off during the hot period but met the cold period requirement and the recovery requirement.

Angle of view is specified in the



The General Electric, second only to the Weston among the meters rated.

standard because it is desirable, in general, that meters be affected mainly by the light coming to it from within the angle covered by the average lens, with relatively little effect from light sources outside this angle. A meter with a very wide angle of view will often give seriously misleading readings. The standard specifies, in effect, that when a meter is pointed toward a uniformly illuminated surface, not less than 60 percent of the total light affecting the meter reading shall come from within a 50 degree cone, and not more than 40 percent from outside the cone. The *General Electric* meter rated highest for angle of view (that is, it had *more* than 60 percent of luminous flux coming through a 50 degree cone), with the *Weston* and *DeJur* 50A also passing the standard. The *Hickok* was somewhat below the standard. The *Skan* and *DeJur* 5B were even worse; and the *Electrophot* was far from meeting the standard.

"Fatigue" tests were made to see whether the readings of the meters were affected by continued exposure to strong light. None of the meters showed any significant change in reading after one hour's exposure.

A modification of the standard test for color sensitivity showed the response of the meters to known intensities of light passing through red, green, and blue filters, respectively. All of the meters showed satisfactory color response.

A modification of the standard impact test indicated that all of the meter mechanisms would safely withstand shocks encountered in normal, careful use. For this test, each meter was clamped to carriage guided by vertical rails and subjected to repeated drops under fixed conditions. The fact that all the meters passed this test does not mean, however, that they can safely be banged around

The DeJur Autocritic, third of the "Acceptable" meters, was fairly accurate.

The Electrophot, above, rated lowest in "angle of view" tests.

or dropped. The test is designed for a delicate instrument, and the results mean only that they will withstand without damage the shocks encountered in normally careful use. No meter can be dropped to a hard floor or pavement without the likelihood that its case or mechanism will be broken or its accuracy impaired.

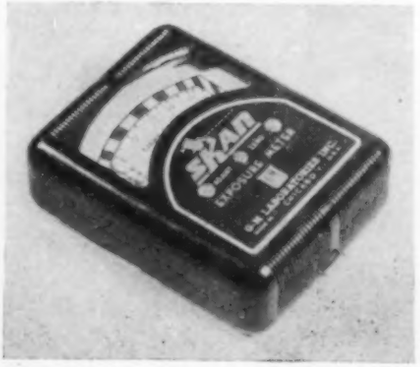
The *Weston* and *General Electric* meters differ from the others in having hinged perforated baffles to restrict the light reaching the photosensitive cell, for use in very bright light. The *General Electric* also has a removable hood over the cell, and the meter is used without the hood in dim light. The minimum light in which a reading can be made is the same for both meters. In this light, the *Weston* is used in the customary manner, that is, with the meter pointed at the view or the subject being photographed. The *General Electric*, on the other hand, must be used with the "incident light" method in dim light. With the hood off, the meter is pointed at the camera instead of at the subject. The scale readings with the hood off are calibrated on the basis of reflection toward the camera of one-tenth of the light striking the subject. While both methods can be used accurately by the experienced and careful photographer, it is CU's belief that the average amateur will find the *Weston* more reliable for use in dim light. The *General Electric* meter can be used as a darkroom exposure meter for enlarging. The *Weston* cannot be used in this way with the usual vertical-type enlarger since its meter face is on the opposite side from the cell.

Methods of determining exposure differ somewhat with the different meters. The *Weston*, the *General Electric* and the *DeJur Autocritic* can be preset for film speed. With the *Weston* and the *General Electric*, a light reading is taken, a pointer is turned to the figure corresponding to the reading, and then the desired exposures and corresponding lens apertures are read from the scale. With the *DeJur Autocritic*, a pointer is set where the meter needle comes to rest for the particular light, thus eliminating one reading, and then exposure time and aperture are read on the calculator scale.

Film speed cannot be preset on the other meters. With these (except for *Hickok*), a scale is turned so that the light reading is set opposite the film exposure index, and then exposure time and aperture are read off. With the *Hickok*, the desired exposure time is preset opposite the film exposure index, the proper aperture is then read directly on the meter face without any manipulation of the calculator.

The lowest priced of the "Acceptable" meters, the *Skan*, while less accurate than the *General Electric* or the *Weston*, is nevertheless a serviceable instrument for those who cannot afford the high price of the better meters, or who want a small meter easily carried in the pocket. Though film speeds cannot be preset on the *Skan*, space is provided immediately below the scales to write in the daylight and tungsten speeds of the film being used.

Many buyers of good photoelectric exposure meters learn to their sorrow that an exposure meter does not insure perfect exposures. Aside from errors to which the best of meters is subject, errors in exposure may be introduced by an inaccurate camera shutter; by film emulsion speeds which differ from marked speeds because of the developer used, the age of the film or variation in manufacture; and by the difference in color sensitivity between emulsion and meter when orthochromatic films (such



The Skan was lowest-priced of the "Acceptable" meters.

The Hickok meter, "Acceptable" but inferior to other meters in the same price range.

as Verichrome and Plenachrome) are used. Furthermore, when the brightness range in the view is great, it may not be possible to get correct exposure for all parts of the view, and judgment must be exercised in using the meter to get the best compromise exposure, or to get correct exposure for the most important portion of the picture. If bright sky or a light source is in the field of view of the meter, the indicated exposure time may give a badly underexposed negative. Especially with meters having a wide angle of view, it is usually desirable to point the meter downward (that is, away from the sky) and away from bright lights. As a matter of fact, a number of meters have their cells inclined downward to minimize the light from the sky.

It must also be remembered that even with normal usage and handling, the best of meters may sooner or later get out of adjustment and need either recalibration by the manufacturer or the use of a correction factor by the photographer. It is, of course, easy to correct the reading if the meter reads uniformly low or high. Correction is more difficult, however, if, as is usually the case, the errors are considerably different at different parts of the scale.

With most of the popular films, a fairly wide range of exposures will give acceptable negatives. This is not true, however, for color film which requires highly accurate exposure for satisfactory results.

Many inexperienced photographers who get an exposure meter along with their first camera, are dismayed to find that the meter does not tell them what exposure time and lens aperture to use, but rather gives them a choice of many exposure time-aperture pairs. The best remedy for such dismay is study of one of the many available pamphlets or books which discuss the significance of shutter speed and aperture in relation to the picture being taken.

A source of confusion to the photographer is the different systems of speed rating of films, and the variations in systems of shutter speed and aperture markings on different cameras and exposure meters. To remedy this situation, standard film exposure index, shutter speed, and aperture marking systems have been established under the auspices of the American Standards Association. The new standard emulsion speeds are already appearing on the containers of some films, and the new *General Electric* meter (which had its own system) is calibrated in terms of standard shutter speeds, apertures and film exposure index.

The following ratings are based on tests of three meters of each brand. The prices include Federal tax.

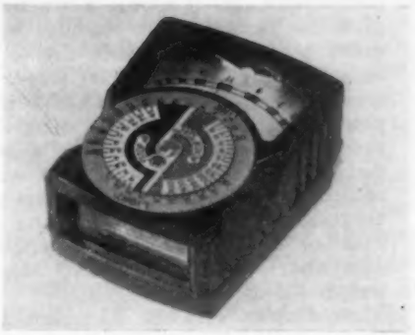
ACCEPTABLE

(In estimated order of quality)

Weston Master II Model 735 (Weston Electrical Instrument Corp., Newark, N.J.). $29.67 without carrying case. Accuracy excellent even under temperature extremes. Accuracy of one of three meters tested was affected by high humidity. Angle of view of low-intensity scale just meets requirements of standard. Most sensitive of all meters tested. Perforated baffle covers light cell for use of meter in very bright light. Meter scale gives readings in candles per square foot on both ranges. Arrangement and legibility of calculator dials excellent, but some crowding at low-intensity end of meter scale. Film speeds could be preset with simple locking arrangement to prevent accidental change of setting. Used Weston emulsion speed numbers. Zero adjuster on back of meter, making manipulation somewhat difficult. Meter large and heaviest of those tested (8.1 oz.).

Speeds Not Standard

It is regrettable that the makers of the *Weston,* the best of the photoelectric meters tested, are still hanging on to the old "Weston Numbers" for indicating film speeds, instead of adopting the ASA standard system. Although this does not detract from the Weston's value as an exposure meter at the present time, while the standard numbering system is still not in general use, it is unfortunate that the Weston's manufacturers are not cooperating in the progressive movement to eliminate a confusion of different systems through standardization.



The DeJur 5B fell below standard on several counts and was rated "Not Acceptable."

General Electric Model 8DW58Y4 (General Electric Co., Schenectady, N.Y.). $26.85 without carrying case. Accuracy good under normal conditions; somewhat poorer under temperature extremes. Accuracy of one of three meters tested was seriously affected by high humidity. Angle of view smaller (and hence better) than standard. Perforated baffle covers cell for use of meter in very bright light. Hood is removed for use of meter by an incident light method in very dim light (meter pointed toward camera rather than subject or light source). With hood on, meter requires 22 times the illumination of the *Weston* for minimum reading; with hood off, gives same minimum reading as *Weston.* Scale gives readings in foot candles. Arrangement and legibility of calculator dials inferior to most other meters. Calibration of meter scale such that about 1/32nd of an inch movement of the needle at lower end of dial is equivalent to the full top half of the scale in terms of shutter speeds and lens openings. Film speeds can be preset. Standard ASA film exposure index numbers used. Zero adjuster was conveniently located on front of meter. Used all standard shutter speeds and lens opening values. Design of meter makes it particularly useful for printing and enlarging. Meter large (largest of all tested); weight 7.6 oz.

DeJur Autocritic Model 50A (DeJur-Amsco Corp., Long Island City, N.Y.). $25.75 with carrying case. Accuracy fair under normal conditions; accuracy not affected materially by high humidity but was affected by temperature extremes. Angle of view slightly greater than standard. Minimum reading required 9 times the

illumination of *Weston;* instructions given for incident light readings with meter pointed toward main source of light. Arrangement and legibility of scales good. Standard ASA scales used. Film exposure index could be preset. Parallax between needle and dial such that position of eye with respect to meter had marked effect on accuracy of readings. Zero adjuster on back of meter making manipulation somewhat difficult. Meter large; weight 7.5 oz.

Hickok Duplex (Hickok Electrical Instrument Co., Cleveland). $23.63 without case. Accuracy fair but variable; affected only slightly by temperature extremes. Not affected materially by high humidity. Angle of view somewhat poorer than ASA standard. Minimum reading required 6 times the illumination of *Weston.* Arrangement and legibility of calculator dials good. Only meter on which film speed and desired shutter speed could both be preset, and proper lens opening read directly on meter without manipulating the calculator. Parallax between needle and dial such that position of eye with respect to meter has marked effect on accuracy of readings. Used only *Weston* and *General Electric* emulsion speed numbers. Zero adjuster on back of meter making manipulation somewhat difficult. Meter fairly large; weight 5.5 oz.

Skan (G-M Laboratories, Inc., Chicago). $12.87 with carrying case. Fairly good accuracy under normal conditions. Accuracy affected by extreme heat, but cell recovered fairly well. Two of three samples tested seriously affected by high humidity. Angle of view greater than that permitted by standard. Minimum reading required 10 times the illumination of *Weston.* Arrangement and legibility of calculator dials good except that the calculator is on the opposite side from the meter face. ASA film exposure index used. Film speeds cannot be preset but space is provided to write in exposure index of film being used. Zero adjuster is conveniently located on front of meter. Meter medium size; lightest of those tested (3.9 oz.).

NOT ACCEPTABLE

Electrophot Model 14-A (Adair & Rhamstine, Detroit). $13.80 without carrying case. Accuracy fairly good. Not Acceptable because angle of view was much greater than permitted by standard and because all three samples tested were seriously affected by high humidity. Smallest of all meters tested; weight 4.1 oz.

DeJur Model 5B (DeJur-Amsco Corp.). $16.80 with carrying case. Not Acceptable because of poor accuracy. Angle of view greater than permitted by standard; two of three samples were seriously affected by high humidity. Meter small and light (4.4 oz.)

CLEANERS
for walls and woodwork

Many may harm paints and hands, others are overpriced, ratings of 131 brands of powders, pastes and liquids reveal.

You can remove some dirt from painted walls or woodwork with just plain water, if you rub hard enough. The trick is to get all the dirt off with a minimum of exertion and a minimum of damage to the paint. CU's tests of 131 brands of wall cleaners show that many are well suited to the job, but that many others are unsuitable in that they are either too hard on the paint, too hard on the hands, or require too much rubbing to remove the dirt.

The paint cleaners on the market come in a wide variety of shapes and forms, composition, concentration, effectiveness, and price. CU's tests covered 50 of the powder or crystal type, 55 liquids and 26 pastes. Price ranges were very wide, on a "ready-to-use" basis. *Swerl,* a powder, could be made into a quart of effective paint-wash at the cost of ¼¢; *O-Cedar Clean-Up,* a liquid, cost 61¢ a quart in usable concentration.

The most common of the active ingredients found in the paint washers, whether solid, liquid or paste, were the following, used singly or in combination with one another:

ALKALINE SALTS, such as trisodium phosphate, tetrasodium pyrophosphate, sodium carbonate, and others.

SYNTHETIC DETERGENTS, or "soapless soaps."

SOAP.

Some wall cleaners contain, in addition, a wax or a resin in emulsion. When these are used without subsequent rinsing, they leave a protective film over the paint surface which can be polished, if desired, to give a more or less glossy surface. Some cleansers contain an organic solvent in addition to other ingredients. Such solvents are particularly useful in cleaning grease-soiled surfaces, though one of them—*Shine Again*—was rated "Not Acceptable" because it was highly inflammable. One other cleaner—*Spic and Span*—contained an unusual ingredient: a glue-like material which, it was claimed, would remain as a protective "invisible coat" if the cleanser were used as directed, without rinsing. Actually, the film left by *Spic and Span* would be invisible on light-colored surfaces. The protection was not judged to be of much value since the residue could be easily wiped off with either a damp or a dry cloth after it had dried. Actually, *Spic and Span* was found "Not Acceptable," not because of its cleaning or protective properties, but because it was found to be excessively alkaline.

Much has been said in the advertisements about the economy of motion with some of the paint cleaners, as a result of the fact that the entire rinsing operation could be omitted. Like so many statements found in the ads, this one contains a kernel of truth—but a kernel only. If the surface is quite soiled, it will be necessary to go over it twice in any event. Usually the second wiping is with clear water; with some cleaners, you can make the second wiping with the same cleansing liquid instead. Furthermore, as with *Spic and Span,* the residue will be noticeable on a dark surface. It is true, however, that the residue, unlike a soap residue, will not be sticky and therefore won't attract more dirt.

There is no fixed rule as to whether you should rinse or not rinse with clear water. Actually the amounts of detergent used are generally small enough so that the residue is negligible and does not show on light-colored surfaces. But if it should show, then by all means rinse it off, no matter what the ads say.

HOW MUCH TO USE

Instructions on how to use the various products were in some cases lacking, in others, quite vague. In CU's dirt removal tests, which involved the removal of baked-on dirt consisting of grease and carbon black from venetian blind slats, it was found that the concentrations recommended on the labels of many products resulted in solutions much too dilute for general use. This does not

necessarily mean, however, that these concentrations would be ineffective for lightly soiled surfaces. The best procedure is to experiment on the material you want to clean. First try the lowest concentration recommended on the label. If this is not effective, add a little more at a time, until it works well on the suface you want to clean.

Powders were found, on the whole, to be much more economical than the liquid cleaners. The latter consist, for the most part, of 95% to 99% water at a very high price. The only relatively concentrated liquid was *Ethyl Cleaner*, in which the water content was only 76%, and which could be diluted with 60 parts of water and still be effective. But even *Ethyl* cost 2¼¢ a quart when properly diluted, as compared with ¼¢ a quart for one of the best of the powders—*Swerl*.

Paste cleaners, like liquids, come in two forms: ready for use, and concentrated. The latter must be diluted with water before use. Most of the pastes consisted essentially of soap and water. Most of the ready-to-use type cleaned very well, but were nevertheless rated "Not Acceptable" because they were too hard on the paint. Furthermore, they were rather messy to use, and required considerable rinsing to remove the sticky, soapy residue.

The concentrated pastes, which required dilution, showed no particular advantage over powder cleaners of the same types and on the whole they were more expensive.

HOW CU TESTED

CU's tests on paint cleaners were of two types: first to find which of the products were effective, and second to eliminate those which might be harmful either to the painted surfaces on which they might be used or to the hands of the user.

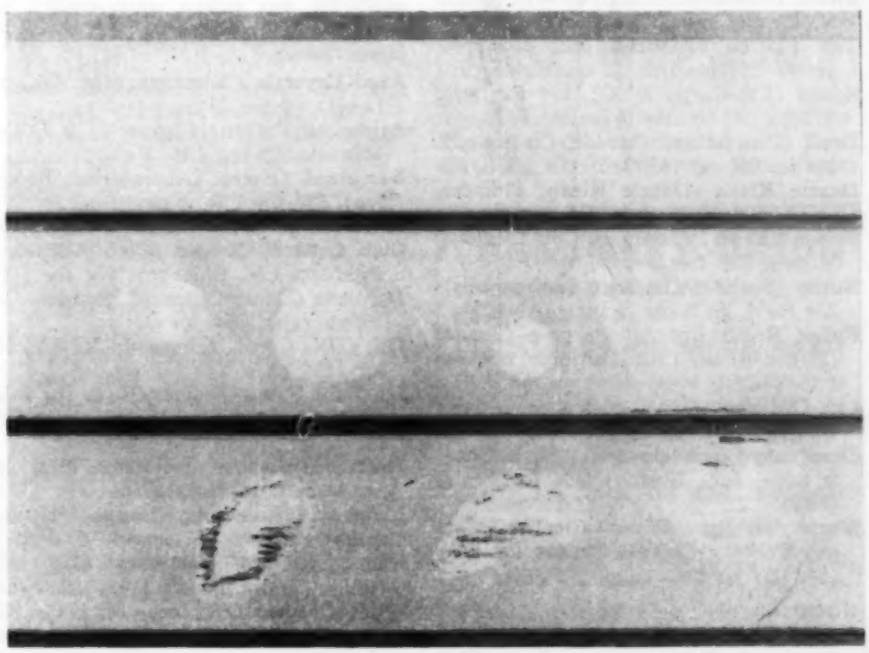
Laboratory tests for effectiveness were modeled on those prescribed in U. S. Navy specifications, though some modifications were made. Uniform gloss-painted venetian blind slats were soiled with a solution of greasy dirt, which was then artificially aged. A standard cleaning procedure was then followed with each test solution. In the cleaning process, a felted cloth was dipped in the solution and then rubbed over the soiled slat a specified number of times under fixed pressure. CU is aware of the limitations of this type of test, since laboratory soil cannot duplicate the soil encountered in home conditions. It is believed, however, that the results obtained under such artificial conditions are likely to be generally applicable to home use, and limited home use tests by members of CU's technical staff tend to confirm this.

Although some of the cleaners tested were effective in removing dirt, the cleaned surface was dull and lacking in gloss. This is an indication that the products not only removed the dirt, but a portion of the paint as well. Consequently, cleaners which reduced gloss considerably were rated "Not Acceptable." It should be noted in this connection, however, that paint films tend to soften when wet; too vigorous rubbing with any cleaner—or even with plain water—may remove some paint.

The degree of alkalinity of the substances was determined by laboratory measurement of "pH." (Technically, this measures *intensity* of alkalinity rather than *quantity* of alkali present. The pH indicates the degree of hydroxyl ion concentration.) A high pH is an indication that the substance will not only be irritating to the hands, especially after prolonged contact, but also that it is likely to damage painted surfaces. Generally, pH measurements were made with a 1% solution of the substances, but because of the nature of ionization of harsh alkalis, they are likely to be about as harsh in concentrations either smaller or larger than the standard. Most of the "Not Acceptable" brands were rejected because of excessive alkalinity (high pH).

The products were also examined to determine whether any harsh abrasives were present. Only one—*HRH Cleaner*—contained an abrasive harsh enough to scratch glass, and so it was rated "Not Acceptable."

A common complaint of housewives in cleaning walls or woodwork is that drops of cleaner, falling on unnoticed spots and not immediately wiped off, leave permanent marks. To test for this effect, drops of each cleaning solution were allowed to fall on a painted surface, and then to dry overnight, after which the surfaces were washed. It was found that even plain water "spots" somewhat, but not nearly so much as some of the cleaners, especially those which previous tests had shown to be excessively alkaline, or to have gloss-reducing properties. None of the otherwise "Acceptable" cleaners were found to spot excessively, though several of the harsher brands not only dulled the paint surface, but actually ate through several paint coats down to the bare wood of the test panels. These were rated "Not Acceptable." Housewives are warned that they should make every effort to clean up dripped solutions before they dry.



With some wall cleaners, drippings on floors or furniture which are not wiped off leave permanent spots. The slats above show three degrees of spotting: top, spotting imperceptible; middle, some spotting; bottom, paint removed and wood exposed.

if an even surface is to be preserved.

All of the liquid and powder cleaners could be used with hard water without the formation of "curd," which forms with plain soap under these conditions. But some of the paste concentrates, such as *Sherwin Williams Flaxoap* and *Murphy's Oil Soap* did form curd with hard water. This would make their use undesirable in hard water areas, since the curd is hard to remove, and its residues are sticky and tend to collect dirt.

In addition to the tests enumerated above, percentage of solids in the liquid and paste cleaners, and the flash point (degree of inflammability) for the cleaners containing organic solvents were determined. Other chemical tests were made in some cases, as indicated in the ratings.

Powders or Crystals

ACCEPTABLE

A maximum of 2 tablespoons per quart was used in the preparation of the cleaning solutions with the exception noted below (Dic-A-Doo). Where good cleaning efficiency could be obtained by using less than 2 tablespoons per quart, the smaller concentration was used in computing comparative economy. Figures in parentheses represent cost per quart of cleaning solution. Listed in order of increasing cost within each quality group.

EXCELLENT

Swerl (Allied Chemical & Dye. Corp., NYC). 21¢ for 10 oz. (0.2¢).

Tay (Turco Products, Inc., Los Angeles). 25¢ for 1 lb. 12 oz. (0.4¢).

Scoop (FR Corp., NYC). 19¢ for 1 lb. (0.5¢).

Dreft (Procter and Gamble, Cincinnati). 25¢ for 8¼ oz. (0.5¢).

Dazzle Klean (Dazzle Klean, Philadelphia). 60¢ for 1 lb. (0.7¢).

Valvo (Koch Chemical Co., Winona, Minn.). 32¢ for 22 oz. (1.1¢).

Sutho (Sutho Suds, Inc., Indianapolis). 23¢ for 1 lb. 2 oz. (1.1¢).

Fuller Brush Co. All Purpose Cleaner (Fuller Brush Co., Hartford). 98¢ for 2 lb. (1.2¢).

Lan-O-Sheen (Lan-O-Sheen, Inc., Saint Paul). $1 for 24 oz. (1.3¢).

Shaw's Ayd Soapless Suds (H. L. Shaw & Sons, Inc., Boston). 25¢ for 12 oz. (1.4¢).

Murphy's Paint and Wall Cleaner (Murphy-Phoenix Co., NYC). 65¢ for 1 lb. (1.9¢).

GOOD

Co-op Dairy and Household Cleanser (National Co-operatives, Inc., Chicago). 37¢ for 5 lb. (0.4¢).

Tops (Johnson Consumer Industries, Inc., Maspeth, L. I., N. Y.). 25¢ for 24 oz. (0.9¢).

Savogran Coldfoam (Savogran Co., Boston). 25¢ for 1 lb. (1.2¢).

Amron (Norma Chemical Co., Mount Vernon, N.Y.). $1 for 4 lb. (1.4¢).

FAIR

Dic-A-Daily (Patent Cereals Co., Geneva, N.Y.). 10¢ for 1¼ lb. (0.2¢).

Co-op Clean-All (Consumers Cooperative Association, North Kansas City, Mo.). 19¢ for 24 oz. (0.6¢).

Britex (Britex Co., Boston). 25¢ for 1½ lb. (0.7¢). One of two samples had high pH.

Elbo Grees (Squirtex Co., Philadelphia). 21¢ for 24 oz. (0.8¢).

Klenz (Britex Co., Boston). 15¢ for 12 oz. (0.9¢).

Rain Drops (Bu-Tay Products, Ltd., Los Angeles). 23¢ for 1 lb. 8 oz. (0.9¢). Contained blue dye.

Super Crystals All Purpose Household Cleaner (Irwin-Newman Products Corp., Brooklyn). 49¢ for 2 lb. 3 oz. (1.2¢).

Marshall's All Purpose Cleaner (Marshall Sanitary Prod. Corp., Chicago). 98¢ for 4 lb. (1.3¢).

Solventol (Solventol Chemical Products, Inc., Detroit). 60¢ for 28 oz. (1.6¢).

Dic-A-Doo (Patent Cereals Co., Geneva, N.Y.). 25¢ for 1 lb. (6.9¢). Label directions were followed in testing this product since a greater concentration than 2 tablespoons per quart was required. Resulting cleaning mixture was a thin paste.

NOT ACCEPTABLE

The following products were rated "Not Acceptable" because of excessive alkalinity (high pH) unless otherwise noted. Since products which were found "Not Acceptable" for any reason were usually not given the full set of tests, they are listed alphabetically.

Abso Crystals (Absorene Mfg. Co., St. Louis). 9¢ for 12 oz.

Aristo All Purpose Cleaner (J & D Co., Miami). 69¢ for 2 lb. 3 oz.

Barcolene (Barco Laboratories, Brooklyn). 50¢ for 1 lb. 6 oz.

Brico (Brico Corp., NYC). 43¢ for 20 oz.

Club General Cleaner (Club Aluminum Products Co., Chicago). 30¢ for 1 lb.

Darolene (Dacar Chemical Products Co., Pittsburgh). 25¢ for 32 oz.

Dif (Dif. Corp., Garwood, N. J.). 10¢ for 10½ oz.

Du Pont Paint Cleaner (E. I. Du Pont de Nemours & Co., Wilmington). 75¢ for 5 lb.

Durlacque Cleaner (Durlacque Mfg. Co., St. Louis). 18¢ for 1½ lb.

Flexo (Swift & Co., Chicago). 15¢ for 2 lb.

Flinco (Flinco Cleansing Co., L.I., N.Y.). 15¢ for 12 oz.

HRH Cleaner (Absorene Mfg. Co., St. Louis). 10¢ for 12 oz. Contained harsh abrasive.

Mel'O (Hygienic Products Co., Canton, Ohio). 8¢ for 12 oz.

Midwest's Clean-It (Midwest Clean-It Co., Lincoln, Neb.). 25¢ for 8 oz.

Nox-Soil (Neverub Corp., Chicago). 10¢ for 12 oz.

Nu-Enamel Cleaner Formula A (Nu-Enamel Corp., Chicago). 19¢ for 12 oz.

Oakite (Oakite Products, Inc., NYC). 10¢ for 10½ oz.

Perfex (Perfex Co., Omaha, Neb.). 25¢ for 8 oz.

Puritan All Surface Cleanser (Puritan Chemical Co., Atlanta). 59¢ for 1 lb.

Rad All Purpose Cleaner (Milrose Products Co., NYC). 50¢ for 1 pt.

Ro-Hel-Gen (Ro-Hel-Gen Products Co., Chicago). 14¢ for 18 oz.

Soilax Formula "B" (Economics Laboratory, Inc., St. Paul). 25¢ for 1½ lb.

Spic and Span (Procter & Gamble, Cincinnati). 21¢ for 1 lb.

Sunseal Cleaner (Patent Cereals Co., Geneva, N.Y.). 25¢ for 1½ lb.

Tish (American Soap Powder Works, Inc., Brooklyn). 21¢ for 1½ lb.

Liquids

ACCEPTABLE

Directions for the following products called for use without dilution. It is possible that many with good cleaning efficiency could be diluted and still give satisfactory results. However, these products were not tested except at their original concentration. Figures in parentheses represent cost per quart of cleaner. Listed in order of increasing cost within each quality group.

EXCELLENT

Zero (Beacon Chemical Corp., NYC). 18¢ for 1 qt.

Boon (Clorox Chemical Co., Oakland, Calif.). 19¢ for 1 qt.

All Nu Warmonia (All-Nu Products Co., Camden, N.J.). 25¢ for 1 qt.

Mandel's All Purpose Cleaner (Mandel Brothers, Chicago). $1 for 1 gal. (25¢).

Vano (Chemicals, Inc., San Francisco). 55¢ for ½ gal. (28¢).

Maid of Honor Liquid All-Purpose Household Cleaner New Formula SR —396. Cat. No.—11 G 6527 (Sears, Roebuck). 29¢ plus postage for 1 qt.

Macy's Wall and Woodwork Cleaner (R. H. Macy & Co., NYC). 30¢ for 1 qt.

All-Brite All-Surface Cleaner (W. T. Grant Co., NYC). 35¢ for 1 qt. One of three samples tested had high pH.

Goodwin's E-Z-Klene (Goodwin Co., Los Angeles). 45¢ for 1 qt. Contained ammonia.

Aimcee All Surface Liquid Cleaner (Associated Merchandising Corp., NYC). 59¢ for 1 qt.

Mystic Zip (The Mystic Foam Corp., Cleveland). 60¢ for 1 qt.

O-Cedar Clean-Up (O-Cedar Corp., Chicago). 23¢ for 12 fl. oz. (61¢).

GOOD

See More All Purpose Cleaner (Seymour Products Co., Chicago). 49¢ for 1 qt.

Burton's All Purpose Ten in One Cleaner (Burton Products, Chicago). 59¢ for 1 qt.

NOT ACCEPTABLE

The following were rated "Not Acceptable" because of excessive alkalinity (high pH) unless otherwise noted. Listed alphabetically.

Bluko All Purpose Cleaner (Cello Wax Co., Baltimore). $1 for ½ gal.

Bullock's Paint Cleaner (Bullock's, Los Angeles). 60¢ for 1 qt.

Carbona Wall-Wipe (Carbona Products Co., New York). 20¢ for 15 fl. oz.

C. C. Parsons' Household Cleanser (Parsons Ammonia Co., N. Y.). 10¢ for 10 fl. oz.

Collins Clean-O-Wall Cleaner (D. A. Collins Mfg. Co., Brooklyn). 20¢ for 1 pt.

Maid-Easy (Maid-Easy Housekeeping Co., N. Y.). 59¢ for 1 pt. Reduced gloss.

May'd Best All Purpose Cleaner (May Department Stores Co., St. Louis). 89¢ for ½ gal.

Mone-X Cleaner (Roselux Chemical Co., Brooklyn). 15¢ for 1 qt.

Old English Household Cleaner (A. S. Boyle Co., Jersey City). 75¢ for 1 qt.

Onco (G. W. Onthank Co., Des Moines, Iowa). 75¢ for 1 qt.

Onthank's (G. W. Onthank Co.). 75¢ for 1 qt. Appeared to be the same as *Onco*.

Patrick's Paint and Home Cleaner (Frank E. Patrick). 50¢ for 1 qt.

Pinetone Cleaner (Norma Chemical Co., Mt. Vernon, N.Y.). 95¢ for 1 qt. Reduced gloss.

Pritz (Pritz Co., N. Y.). 29¢ for 1 qt.

Pronto-Clean (Pacific Chemical Co., Los Angeles). 26¢ for 1 qt. Reduced gloss.

Puritan All Surface Cleaner (Puritan Chemical Co., Atlanta). 59¢ for 1 qt.

Soil-Off (Soil-Off Mfg. Co., Decatur, Ill.). 60¢ for 1 qt. Reduced gloss.

Speed Up (American Stores Co., Philadelphia). 15¢ for 1 qt.

Tavern Paint Cleaner (Socony-Vacuum Oil Co., N. Y.). 59¢ for 1 qt.

Tidy-Wall (Tidy-Wall Co., N. Y.). 29¢ for 1 qt.

Vapoo All Purpose Cleaner (Vapoo Products Co., N. Y.). 75¢ for 1 qt.

"Whee" All Purpose Liquid Cleaner (Cal-Western Manufacturers, Los Angeles). 39¢ for 1 qt.

Liquids—Emulsion Type

ACCEPTABLE

All contained wax or resin. Listed in order of cost per quart within each quality group.

EXCELLENT

Wards Venetian Blind Cleaner Cat. No. —86 B 16 (Montgomery Ward). 45¢ plus postage for 1 qt. Noncombustible mixture.

Maid of Honor Venetian Blind Cleaner Cat. No.—6502 (Sears, Roebuck). 88¢ plus postage for 1 qt. Combustible mixture; flash point was 120° F. Labeled "Non-Inflammable."

JNT Cleanamel (J. N. T. Mfg. Co., Wheaton, Ill.). $2 for ½ gal. ($1). Combustible mixture; flash point was 135° F. No label warning.

Sani-Wax (Sani-Wax Co., Cleveland, Okla.). $1.39 for 1 qt. Combustible mixture; flash point was 135° F. No label warning.

GOOD

Magikleen (Magicolor Co., Chicago). 98¢ for 1 qt. Noncombustible mixture.

NOT ACCEPTABLE

Shine Again (Aladdin Products, San Francisco). 75¢ for 1 qt. Inflammable mixture; flash point below 100° F. Misleading label from safety standpoint. Labeled "Harmless, Non-Explosive." The last sentence under directions for use said (in smaller print), "Keep away from open flame." Did not contain wax or resin.

Liquid—Concentrates

ACCEPTABLE

Where good cleaning efficiency could be obtained with dilution, this information was used to obtain comparative economy. Figures in parentheses represent cost per quart of cleaning solution. Listed in order of increasing cost per quart within each quality group.

EXCELLENT

Ethyl Cleaner (Ethyl Corp., N. Y.). $1 for 24 fl. oz. (2.2¢).

Household Penetone (Penetone Co., Tenafly, N.J.). 89¢ for 1 qt. (2.7¢).

Pit-A-Pat Magic Drops (Lumar Products Co., Bridgeport, Conn.). 25¢ for 1 pt. (3.1¢).

Solvene (Scientific Products Corp., Los Angeles). 47¢ for 1 qt. (7.8¢).

Stynamite (Stynamite Co., San Francisco). 45¢ for 24 oz. (10.7¢).

GOOD

Des-Tex Foam (Research Des-Tex, Inc., Evanston, Ill.). $1.25 for 1 qt.

FAIR

I. C. Degreaser (Interchemical Corp., Fair Lawn, N. Y.). $1.59 for 1 qt. (2.5¢). Good cleaning would have resulted from using concentrations above that of label directions. However, product would then be "Not Acceptable" because of high pH.

NOT ACCEPTABLE

The following products were rated "Not Acceptable" because of excessive alkalinity (high pH). Listed alphabetically.

Beacon's Pine Oil Household Liquid Soap (Beacon Supply Co., N. Y.). 25¢ for 1 qt.

Klens Cleaner (Klens, Inc., Evanston, Ill.). 98¢ for 1 qt.

Old Faithful (Hanley & Kinsella Laboratories, Inc., St. Louis). 49¢ for 1 qt.

Sanford's General Purpose Cleaner (Sanford Laboratories, Los Angeles). 60¢ for 1 qt.

Tom Kon's (Tom Kon Co., Indianapolis). 49¢ for 8 fl. oz.

Whiz-Off (R. M. Hollingshead Corp., Camden, N. J.). 75¢ for 1 qt.

Pastes & Gels

NOT ACCEPTABLE

The following products were recommended for use without dilution and were so tested. All were rated "Not Acceptable" because they reduced gloss. Listed in alphabetical order.

Dic-A-Doo Woodwork and Wall Cleaner (Patent Cereals Co., Geneva, N.Y.). 35¢ for 2 lb.

4 in 1 All Purpose Cleaner (Vapoo Products Co., N. Y.). 39¢ for 24 oz. Contained considerable amount of mild abrasive.

Garden City Cleaner (Garden City Paint & Varnish Co., Chicago). 75¢ for 1 gal.

Jewel T Cleaner (Jewel Tea Co., Barrington, Ill.). 50¢ for 3 lb. 12 oz.

Labor-Less Cleaner (John Uhrik, Chicago). $1 for 1 gal.

Maid of Honor Waterless Cleaner New Formula SR-214, Cat. No. — 6528 (Sears, Roebuck). 52¢ plus postage for 5 lb.

Murphy's Evergreen Pine Jelly Soap (Murphy Laboratories, Upper Darby, Penna.). 23¢ for 31 oz.

Pine-Oleen All-Purpose Pine Oil Soap (Curley Co., Philadelphia). 24¢ for 1 qt.

Rex-O Waterless Cleanser (Berry Chemical & Mfg. Co., Chicago). 59¢ for 5 lb. Can labeled, "Price $1."

Roanco (Rose Co., Atlanta). 50¢ for 1 qt.

Royal Waterless Cleanser (Kutol Products Co., Cincinnati). 33¢ for 5 lb.

Samoline (Boyle-Midway, Inc., Jersey

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City). 29¢ for 1 lb.

Sanitary Paint Cleaner (Betts' Products Co., Washington, D. C.). 89¢ for 5 lb.

Wigg's Waterless Cleanser (Wiggins Chemical Co., Cincinnati). 89¢ for 5 lb.

Pastes & Gels—Concentrates

ACCEPTABLE

All products were essentially soap. Usual concentration used for tests was 1 to 2 tablespoons per quart. Listed in order of increasing cost within each group. Figures in parentheses represent cost per quart of solution.

GOOD

Flaxoap, Sherwin-Williams Products (Sherwin-Williams Co., Cleveland). 29¢ for 1 lb. (1¢). Formed curd in hard water.

Murphy's Oil Soap (Murphy-Phoenix Co., Cleveland). 65¢ for 2 lb. (1.1¢). Formed curd in hard water.

Dilution of the following products according to directions for use resulted in a thin paste.

GAS Waterless Cleanser (G. A. S. Cleansing Products Co., New York). 35¢ for 16 oz. (21¢).

Samae All Purpose Cleanser (Samae Products Co., Newark, N. J.). 39¢ for 1 lb. (23¢).

Argosheen Cleaner (Argo & Co., Memphis). $1 for 14 fl. oz. (59¢). Contained organic solvent. Flash point when mixed according to label directions was 130° F. No label warning.

NOT ACCEPTABLE

The following products were "Not Acceptable" for the reasons stated. Listed alphabetically.

Jello O Pine (Foster Finishing Products Co., Philadelphia). 53¢ for 2 lb. High pH.

Lem O Pine (Lem-O-Pine, Philadelphia). 29¢ for 2 lb. Reduced gloss.

Lin-Sol (Lin-Sol Products, Los Angeles). 50¢ for 1 qt. High pH.

Quaker Soap (Quaker Soap Mfg. Co., Philadelphia). 19¢ for 1 lb. High pH.

Royox (Royce Chemical Co., Carlton Hill, N.J.). 15¢ for 8 fl. oz. Reduced gloss.

Saf-Tee Pine Jell Cleaner (United States Chemical Co., Collingswood, N.J.). 29¢ for 2 lb. 2 oz. Reduced gloss.

White Eagle Pine Jelly Soap (White Eagle Chemical Co., Philadelphia). 25¢ for 1 lb. 14 oz. Reduced gloss.

WOMEN'S SLIPS

Good, bad and indifferent buys are available in rayon, nylon and cotton, CU's report on 87 brands show. Fit and cut as well as quality of fabric should be considered by the buyer.

Eighty-seven brands of women's slips—with two samples of each brand—were put through their paces in CU's textile laboratory. Tests were made to determine how well they would be likely to wear and how well they conformed to standard measurements; type and quality of construction were examined. Though there were some big differences among the individual brands tested, there appeared to be little over-all change in slips since CU last tested them and presented its report in February, 1946.

One trend was evident, however. Though CU shoppers tried hard to buy "tailored" models, free of lace or other fancy trim, this was impossible in most brands. Very likely this was the result of the customary upgrading technique, since the samples were bought while price control was still in effect. By adding a bit of fagoting here and a touch of lace there, manufacturers were able to push their products into the more profitable higher price lines. Now that there is no limitation on the prices which may be charged for untrimmed slips, consumers may expect to see more of them on retailers' shelves.

FABRIC

Fifty-two brands of woven rayon slips—27 rayon crepe and 25 rayon satin—were laboratory tested for tensile strength, thread count, resistance to abrasion, slippage of fabric, shrinkage and strength of strap attachment. Similar tests were made on five brands of cotton slips and the single brand of woven nylon available at the time of the test.

The knitted slips—28 rayon and one nylon were tested for bursting strength, resistance to abrasion, tendency of the fabric to run, and strength of strap attachment.

In addition, all slips were examined for manner of strap attachment, type and quality of construction, adjustability of straps, and conformity to size specifications.

Of the various fabrics and constructions available, rayon crepes and satins are the most widely sold. All the satins examined were of the "five harness" type. In this construction, each loosely twisted warp yarn is "floated" over five filling yarns, giving the fabric a lustrous face and a dull, crepe-like reverse. In such a weave, a high warp thread count is essential for both strength and appearance; too few warp threads give a sleazy appearance and have a tendency to pull out. Enough filling threads are needed to hold the warp threads firmly and to prevent slippage. Properly-balanced, high-count satins tend to be stronger than crepes (plain-weave fabrics, the same on both sides), but a good crepe is stronger than a poorly made satin.

Knit rayon slips as they are made today, are far different from their shapeless tubular forerunners. Many are as carefully cut and styled as woven slips, and fancy trims can be bought if desired. Furthermore, the plain knits, using the stitch generally found in stockings, are seldom found, and consequently the problem of runs has been lessened. More popular are "warp knit" and "one-by-one rib," which run in one direction only, and "tricot" and "milanese," which do not run at all.

In cotton slips, strength of fabric is often sacrificed for softness, and, since this involves the use of low-twist low-count cotton, the garment has a general tendency to slip and cannot be expected to last for a long time.

Nylon slips, both woven and knit, are becoming increasingly available as this goes to press, though only one brand of each type could be found at the time CU's buying was done. Tests on these proved interesting even if not conclusive. As might be expected, the fibers of both were extremely strong. The knit nylon slip appeared to be altogether satisfactory and might be expected to give wear several times that of a similar rayon slip. The woven nylon had a serious deficiency, however. The tendency of the threads to slip was so great that it rates "Not Acceptable" in comparison with other woven fabrics. It is probable that this can be overcome as new production techniques are developed, but at this stage of development, consumers are advised against purchase of woven nylon slips.

That nylon is well worth perfecting is unquestionable. Aside from its high strength both wet and dry, it has two important characteristics; it dries very quickly after washing, and it

dries without wrinkling, so that little or no ironing is necessary.

CONSTRUCTION

Various combinations of straight and bias cuts are available in woven slips. Cut influences both wear and fit; bias-cut tends to fit better and to pull out less easily at the seams than straight-cut, though some women prefer one or more panels straight-cut. In general, a slip with several gores will fit better than one made of only two pieces, though again this is a matter of individual preference.

Firm machine-sewn seams (a firm lock stitch with an overcast thread is best) are stronger than hand-sewn; fagoted seams may be good or bad, depending on the thread used, how deeply the stitch "bites" into the fabric, and the reinforcement of the edges at the fagot seam. In knit slips, it is especially important that the seams be flexible enough to stretch without tearing as the fabric is stretched.

In general, a plain or tailored slip is more durable than a highly decorated one, but if the slip you want has lace on the bodice, be sure that the shoulder straps are firmly attached to the body of the slip rather than to the lace. Straps on all slips should be firmly anchored; on double-bodice slips, they should be inserted between the two layers of material to a depth of at least a quarter inch.

Adjustable straps are best for most persons, since individuals taking the same slip size vary considerably in measurement from shoulder to bust, and adjustable straps make it unnecessary to resew the strap to a suitable length. But strap adjustment should not be counted on to make a too-long or a too-short slip the right length. Shortening or lengthening the straps beyond the point where the other measurements fall into the right places throws the whole garment out of line, and fit, comfort and durability are likely to be impaired.

SIZE OF SLIPS

The sizing situation in slips is in a very chaotic state. Although the National Bureau of Standards has, with the industry's help, promulgated size standards, the industry's acceptance of these standards leaves much to be desired. According to the standards, slips should be labeled as to bust size, and there are specifications for length and hip size for each bust size. In addition, the standards call for a "short" series, designated in odd half-sizes (31½, 33½, 35½, etc.).

Since practice does not, in most cases, conform to standard, the label marking will generally give you no more than an approximate idea of whether or not the slip you want to buy will fit you. And, since stores seldom offer facilities for trying on slips, your only safe alternative is to buy the size you think is right, take it home, and try it on for size; if it doesn't fit, exchange it for the next nearest approximation.

When you try on a slip, make sure that there is adequate fullness at the hips, when you are sitting as well as standing. A slip which is too tight at the hips will ride up when you sit down, and the seams may rip. But don't get a slip too full at the hips, or it will bunch and be uncomfortable. The slip should be fairly snug at the bust, and should neither cut nor sag under the arms. With the straps adjusted, all the parts should fall at the right places: bust, underarm, waist, and hips. You can't lengthen or shorten a slip at the straps more than an inch or so, once you have it adjusted to good fit elsewhere.

LAUNDERING

Regardless of the fabric used, all slips require careful laundering. They should, in the first place, never be allowed to get so dirty that they cannot be laundered with lukewarm water, mild soap, and little or no rubbing. Suds should be pressed through the fabric, rather than rubbed through. After it is washed, the slip should be rinsed in lukewarm water, rolled in a towel (rather than wrung out) to remove excess moisture, then allowed to dry away from strong sunlight or heat.

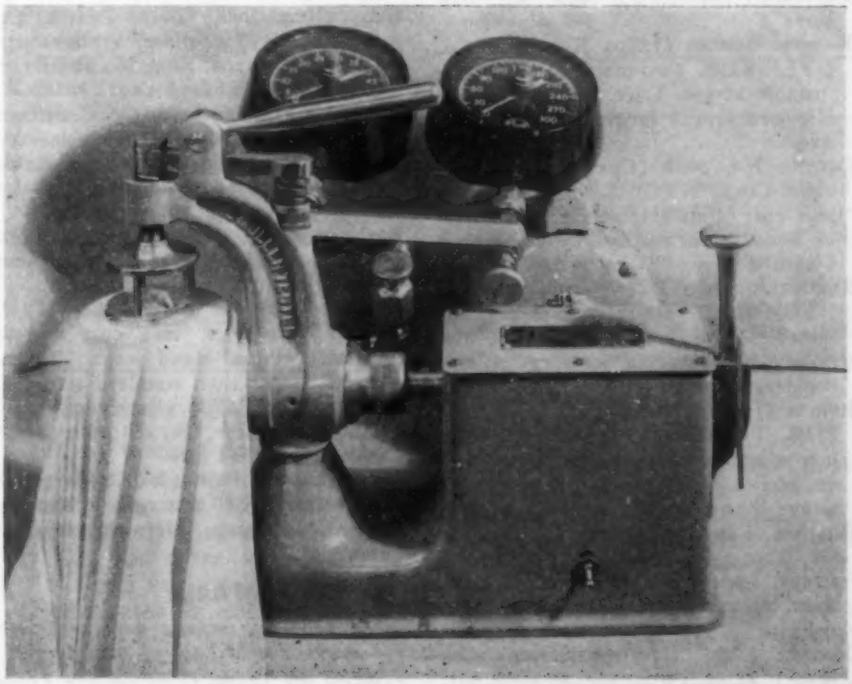
With knitted slips, it is a good idea to stretch them gently into shape while they are still wet, and to allow them to dry flat. Ironing is not generally required if this is done, though if you prefer, you can iron dry with a warm (not hot) iron.

Woven slips should be ironed when damp with a warm iron. It is better to iron them on the wrong side.

RATINGS

In rating the slips, CU attached greatest importance to durability factors: resistance to abrasion and tensile strength (for woven slips) or bursting strength (knitted slips), thread count, slipping of fabric (woven slips), tendency to run (knitted slips) and strength of strap attachments. Other factors examined included shrinkage after washing, cut, seam construction, type of strap, and conformity to size specifications.

The ratings below apply specifically to the models described. They do not necessarily apply to other models made by the same manufacturer.



Bursting strength of knitted fabrics is measured with the electrically-operated Mullen tester, shown above.

Rayon Crepe

BEST BUYS

Miss Swank (Miss Swank, NYC). $2.25. Four-piece, bias-and-straight cut; adjustable straps. Hip and length larger than standard size.

Textron (Textron, Inc., NYC). $2.95. Two-piece, bias-and-straight cut; adjustable straps. Bust, hip and length larger than standard size.

Madislip (Madison Undergarment Co., NYC). $2.98. Two-piece, bias cut; adjustable straps. Bust, hip and length larger than standard size.

Loomcraft Kustom-Fit 1966 (I. Schneierson & Sons, Inc., NYC). $1.35. Best Buy because of low price. Two-piece, straight cut; adjustable straps. Not the same as **Loomcraft Kustom-Fit 1960** at $1.20 listed below.

ACCEPTABLE

(In estimated order of quality)

Madislip (see "Best Buys").

Textron (see "Best Buys").

Fray-Pruf (David Korn & Co., NYC). $3.98. Two-piece, bias cut; adjustable straps. Fagoted seams, lace trim on bodice and hem. Odd size.

Miss Swank (see "Best Buys").

Jean Vernon (Vogue Knitting Co., Womelsdorf, Penna.). $3.98. Two-piece, bias cut; adjustable straps. Eyelet embroidery on bodice. Bust, hip and length larger than standard size.

Newform (Manhattan Undergarment Co., NYC). $3.50. Four-piece, bias cut; adjustable straps. Fagoted seams and trim on bodice. Hip and length larger than standard size.

Loomcraft Kustom-Fit 1966 (see "Best Buys").

Kayress Sonnet (Julius Kayser & Co., NYC). $2.98. Two-piece, bias cut; adjustable straps. Lace trim on bodice. Hip and length larger than standard size.

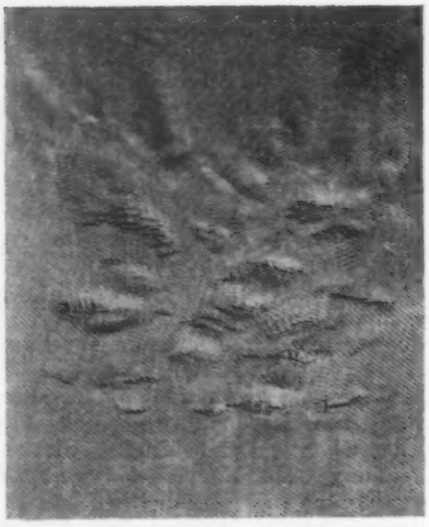
Corette No. 3032 (Custom Undergarment Corp., NYC). $3.98. Two-piece, bias cut; adjustable straps. Lace trim on bodice. Hip and length larger than standard size.

Seamprufe Style J127 (Seamprufe Inc., NYC). $1.90. Two-piece, bias cut; adjustable straps. Odd size. Not the same as **Seamprufe** with eyelet embroidery trim on bodice, listed below.

Juliana (Juliana Underwear Co., NYC). $5.98. Two-piece, bias cut; one-inch, non-adjustable lace straps. Lace trim on bodice and hem. Hip and length larger than standard size.

Rhythm (Rhythm Lingerie, Inc., NYC). $3. Two-piece, bias cut; adjustable straps. Lace trim on surplice bodice. Bust, hip and length larger than standard size.

Colony Club (Holland-Hessol Co., NYC). $2.98. Two-piece, straight cut; adjustable straps. Satin trim on bodice and hem.



Slippage is a major problem with woven nylon (shown above), as well as with some rayon and cotton fabrics.

Mary Barron Biastrait (Davidson Bros. Corp., NYC). $2.98. One-piece, bias-and-straight cut; adjustable straps. Odd size.

Miss Deb (Stylecraft Lingerie, Inc., NYC). $2.85. Two-piece, bias cut; adjustable straps. Lace trim on bodice. Bust measurement one size smaller than marked size due to shrinkage; hip and length larger than standard size.

Seamprufe (Seamprufe, Inc.). $2.98. Two-piece, bias cut; adjustable straps. Eyelet embroidery trim on bodice. Hip and length larger than standard size.

Laros Dimensional (Laros Textiles Co., NYC). $3. Two-piece, straight cut; adjustable straps. Bust, hip and length larger than standard size.

Schrank's Fashion Stride (M. C. Schrank Co., NYC). $2.98. One-piece, bias-and-straight cut; adjustable straps. Eyelet embroidery trim on bodice. Hip larger than standard size.

Barbizon Bryn Fair (Barbizon Corp., NYC). $1.85. Four-piece, bias cut; non-adjustable straps. Odd size.

Yolande (Lande & Miskend Co., NYC). $7.95. Two-piece, bias cut; non-adjustable straps. Hand sewn. Hip and length larger than standard size.

Barbizon Bryn Chic (Barbizon Corp.). $2.50. Four-piece, bias cut; non-adjustable straps. Odd size.

Loomcraft Konform (I. Schneierson & Sons, Inc.). $1.80. Four-piece, bias cut; adjustable straps. Hip larger than standard size.

NOT ACCEPTABLE

The following brands were considered Not Acceptable because of poor fabric:

Fruit of the Loom (Fruit of the Loom, Inc., Providence, R.I.). $1.45. Two-piece, bias cut; adjustable straps. Hip and length larger than standard size.

Loomcraft Kustom-Fit 1960 (I. Schneierson & Sons, Inc.). $1.20. Two-piece, straight cut; adjustable straps.

Unbranded (Purchased from Gamble's Store, Minneapolis, Minn.). $2.59. Two-piece, bias cut; adjustable straps. Bust, hip and length larger than standard size.

Rayon Satin

BEST BUYS

Barbizon Bryn Belle (Barbizon Corp.). $1.85. Four-piece, bias cut; non-adjustable straps. Odd size.

Barbizon Jaunty Rite (Barbizon Corp.). $2.50. Two-piece, straight cut; non-adjustable straps. Odd size.

ACCEPTABLE

Heavenly Lingerie by Fischer (Fischer & Co., NYC). $4.75. Four-piece, bias cut; adjustable straps. Odd size.

Yolande (Lande & Miskend Co.). $10.95. Two-piece, bias cut; non-adjustable straps. Lace trim on bodice, hand sewn. Hip and length larger than standard size.

Fray-Pruf (David Korn & Co., NYC). $3.98. Four-piece, bias cut; adjustable straps. Bust, hip and length larger than standard size.

Barbizon Jaunty Rite (see "Best Buys")

Shar-Loo (Tailored Silk Undergarment Co., NYC). $4.98. Two-piece, bias-and-straight cut; adjustable straps. Lace trim on bodice and hem; elastic inserts at sides. Odd size.

Barbizon Bryn Belle (see "Best Buys").

Kayress Strait-On (Julius Kayser & Co.). $2.98. Two-piece, bias-and-straight cut; adjustable straps. Bust, hip and length larger than standard size.

Corette 3032 (Custom Undergarment Corp.). $3.98. Two-piece, bias cut; adjustable straps. Eyelet embroidery trim on bodice. Hip and length larger than standard size.

Miss Swank (Miss Swank). $5.98. Four-piece, bias-and-straight cut; non-adjustable, one-inch eyelet embroidery straps. Eyelet embroidery trim on bodice and hem. Nine-inch slit on bottom of slip. Hip and length larger than standard size.

Skylon (Nu-Fashion Underwear Corp., NYC). $3.98. Four-piece, bias cut; adjustable straps. Fagoted seams and trim on bodice. Hip and length larger than standard size.

Wards Cat. No.—1076 (Montgomery Ward). $2.52 plus postage. Four-piece, bias cut; adjustable straps. Hip and length larger than standard size.

Barbizon Bryn Vogue (Barbizon Corp.). $2.50. Four-piece, bias cut; non-adjustable straps. Odd size.

Colony Club (Holland-Hessol Co.). $3.95. Four-piece, bias cut; adjustable

straps. Fagoted trim on bodice. Bust, hip and length larger than standard size.

Artemis (Weil-Kalter Mfg. Co., NYC). $2.98. Two-piece, bias-and-straight cut; adjustable straps. Fagoted trim on bodice. Bust, hip and length larger than standard size.

Laura Lane (Epstein Underwear Co., NYC). $4.98. Two-piece, bias cut; adjustable straps. Eyelet embroidery trim on bodice. Hip and length larger than standard size.

Radelle (Radelle, Inc., NYC). $3.98. Six-piece, bias cut; non-adjustable ¾ inch fagoted straps; fagoted trim on bodice. Hip and length larger than standard size.

Su-lette (Superior Petticoat Co., NYC). $2. Two-piece, bias cut; adjustable ribbon straps. Fitted bodice, with elastic insert across back. Odd size.

Mary Barron Biastrait (Davidson Bros. Corp.). $3.98. One-piece, bias-and-straight cut; adjustable straps. Lace trim on bodice and hem. Bust, hip and length larger than standard size.

Seamprufe Style 641 (Seamprufe, Inc.). $2.98. Two-piece, bias cut; non-adjustable, ¾-inch fagoted straps; fagoted trim on bodice. Hip and length larger than standard size.

Sears Cat. No.—3002 (Sears, Roebuck). $1.90 plus postage. Four-piece, bias cut; adjustable straps. Hip larger than standard size.

NOT ACCEPTABLE

The following brands were considered Not Acceptable because of poor fabric.

Lana Joyce (Epstein Underwear Co.). $2.61. Four-piece, bias cut; adjustable straps. Lace trim on bodice. Hip and length larger than marked size.

Atlan (Textron, Inc.). $1.90. Two-piece, bias cut; adjustable straps. Hip, bust and length larger than standard size.

Madislip (Madison Undergarment Co.). $2.98. Two-piece, bias cut; adjustable straps. Eyelet embroidery trim on bodice. Bust, hip and length larger than standard size.

Unbranded (Purchased from Gamble's Store, Minneapolis). $1.55. Two-piece, bias cut; adjustable straps. Eyelet embroidery trim on bodice. Bust, hip and length larger than standard size.

Fruit of the Loom (Fruit of the Loom, Inc.). $1.45. Two-piece, bias cut; adjustable straps. Bust, hip and length larger than standard size.

Knit Rayon

BEST BUY

Fruit of the Loom (Fruit of the Loom, Inc.). $1.29. Four-piece, adjustable straps.

ACCEPTABLE

Extacee (Extacee Lingerie, Inc., NYC). $2.25. Two-piece; adjustable straps. Not the same as **Extacee** with net trim, listed below.

Barbara Lee (Associated Merchandising Corp.). $2. Four-piece; adjustable straps.

Fruit of the Loom (see "Best Buy").

Dutchess Slimliner (Dutchess Underwear Corp., NYC). $2.25. Four-piece; adjustable straps. Not the same as **Dutchess Slimliner** at $1.29, listed below.

Vanity Fair (Vanity Fair Mills Inc., NYC). $2.25. Two-piece; adjustable straps. Not the same as **Vanity Fair Radia,** listed below.

Lorbee. $3.95. Two-piece; adjustable straps.

Faerie Style E837N (Fairy Silk Mills, Shellington, Penna.). $2.25. Four-piece; adjustable straps. Lace trim on bodice and hem.

Faerie Style E829N (Fairy Silk Mills). $2.25. Three-piece; adjustable straps.

American Maid Style J453 (American Maid Co., NYC). $2.50. Two-piece; non-adjustable, one-inch fagoted straps. Fagoted trim on bodice.

Faerie Style E848N (Fairy Silk Mills). $2.50. Four-piece; adjustable straps. Lace trim on bodice and hem.

Dutchess Slimliner (Dutchess Underwear Corp.). $1.29. Four-piece; adjustable straps. Ran in one direction.

Wards Cat. No.—1500 (Montgomery Ward). $1.09 plus postage. Four-piece; adjustable straps. Ran in one direction.

Loomcraft Stripe-Tex (I. Schneierson & Sons). $1.15. One-piece; adjustable straps.

Extacee (Extacee Lingerie, Inc.). $4.95. Two-piece; adjustable straps. Net trim on bodice and hem.

Van Raalte Petalskin Slither Slip 7361 (Van Raalte Co., NYC). $2.20. Four-piece; adjustable straps. Not the same as **Van Raalte Petalskin** 7227, with net trim, listed below.

Vanity Fair Radia (Vanity Fair Mills). $2.25. Four-piece, adjustable straps.

Reports to Teachers

Many teachers find the *Reports* useful in their classroom work in home economics, science, economics, consumer education, mathematics, and other subjects.

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Luxite (Holeproof Hosiery Co., NYC). $1.69. Two-piece; adjustable straps. Lace trim on bodice and hem. Ran in both directions after fabric broke. Not the same as **Luxite** at $3, listed below under Not Acceptable.

Van Raalte Petalskin 7227 (Van Raalte Co.). $2.35. Two-piece; adjustable straps. Net trim on bodice and hem.

Van Raalte Stryps (Van Raalte Co.). $1.95. Two-piece; adjustable straps. Ran in one direction.

Carter's (Carter Underwear Co., NYC). $3. Two-piece; adjustable straps. Lace trim on bodice and hem.

Slimtite (Western Underwear Co., NYC). $2.95. Four-piece; adjustable straps. Net trim on bodice and hem.

Kayser (Julius Kayser & Co.). $1.65. Two-piece; adjustable straps. Not the same as **Kayser Lok-Ray** listed below. Ran in one direction after fabric broke.

Kayser Lok-Ray (Julius Kayser & Co.). $1.29. Two-piece; adjustable straps. Ran in one direction.

NOT ACCEPTABLE

The following brands were considered Not Acceptable because of poor fabric:

Mayfair (Vanity Fair Silk Mills). $2.25. Two-piece; adjustable straps.

Luxite (Holeproof Hosiery Co.). $3. Two-piece; adjustable straps. Lace trim on bodice and hem.

Munsingwear (Munsingwear, Inc., NYC). $2. One-piece; adjustable straps.

Rogers Illustra (A. H. Rogers & Co., NYC). $1.95. Two-piece; adjustable straps. Net trim on bodice and hem.

Munsingwear (Munsingwear, Inc.). $1.29. Four-piece; adjustable straps. Ran in one direction.

Cotton

BEST BUYS

Loomcraft (I. Schneierson & Sons). 95¢. Four-piece, straight cut; built-up shoulder model. Bust and hip larger, length shorter than standard size.

Schrank's Syl-O-Slip (M. C. Schrank Co.). $1. Two-piece, straight cut; built-up shoulder model with shadow panel. Hip larger, length shorter than standard size.

ACCEPTABLE

Schrank's Syl-O-Slip (see "Best Buys").

Loomcraft (see "Best Buys").

Yolande (Lande & Miskend). $5.95. Two-piece, bias cut; wide, non-adjustable straps. Fancy straps and trim on bodice.

Jonley (Zerrer-Bradley Co., NYC). $2.98. Two-piece, bias cut; adjustable straps. Eyelet trim on bodice.

Mardel Sur. $2.98. Two-piece, bias cut; adjustable straps. Eyelet trim on bodice.

Juice Extractors

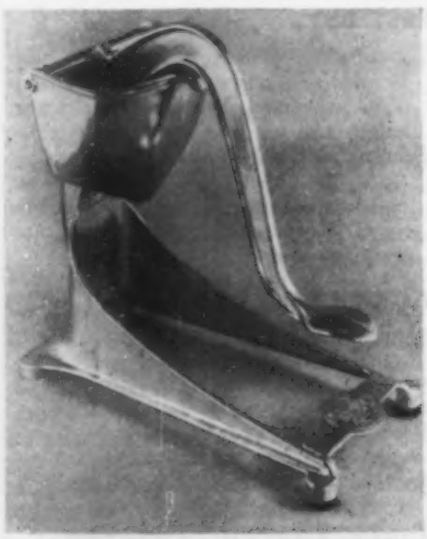
It's hard work, squeezing your morning oranges with some juicers, but with others it's less of a chore, CU's tests of 20 brands show.

In 1939, CU was able to report: "A fruit juice extractor adequate for the needs of most households can be obtained for $1 to $1.50." As with most other low-cost items, the price picture is now much changed. Today the cheapest usable mechanical juicer found by CU shoppers sells for $3.15.

Juice extractors are of two general types: the reamer type and the pressure type. In the former, the fruit is rotated against the reamer, or the reamer is rotated, electrically or mechanically, while the fruit is held against it. The pressure type is divided into three classes: the fruit may be squeezed between two jaws which are forced together by a lever arm, or forced down over a cone by a gear arrangement, or forced over a cone by a lever arm.

Of the 20 brands of juicers tested, seven were of the reamer type, three of the jaw-pressure type, five of the lever-crush type, and six of the gear-crush type. Of these, seven juicers were considered "Not Acceptable" because of poor design, difficulty in use, or poor juicing performance. Two of the "Not Acceptable" juicers used lever pressure, three were reamers, and two used gear pressure.

This report does not cover simple hand reamers, which are, of course, much cheaper. The simplest of these consists of a one-piece glass saucer with a conical center, and sells for 10¢ to 25¢ at the dime stores, when it is available. More generally available at this time, however, are plastic versions of the hand reamer, flimsily made and selling for 95¢ to $1.



The Wear Ever Juicer, a jaw-pressure machine which crushes the orange.

The motor-driven reamers examined were rather difficult to operate because of excessive vibration. One motor-driven juicer, the Gilbert, ran too fast, was difficult to handle, and tended to be hard on the fingers. This was considered "Not Acceptable."

As a rule, the pressure type of juicer was found the easiest to use. All were fairly easy to operate and to clean. In the pressure type, the shape of the cone and the general design of the juicer as well as the material from which it was made determined the rating.

Of the "Acceptable" juicers, the *R.Z.A.*, the large *Juice King* and the *Kitchen Queen* were outstanding for ease of operation. These juicers, however, sold for $12.95, $9.95 and $8.95, respectively. Other juicers listed below were fairly easy to use and were less expensive. The best of these were the *Juice-O-Mat,* the *Juice King* and the *Juice Squeeze,* selling for $4.39, $4.95 and $4.35, respectively. They are listed as "Best Buys." All the above juicers were of the pressure type, operated by gear or lever arm. The jaw pressure juicers, *Kitchen Prince, Wear Ever* and *Universal,* selling for $3.95, $3.25 and $3.25, respectively, were considered next in order of merit. And following close behind these were the *Dazey* and the wall and stand models of the *Mason* juicers, which were reamers operated by handles at the side of or below the body.

The listings below are in order of estimated ease with which the juicers can be used and cleaned. However, the differences between "Acceptable" juicers were not great. Those which could not withstand the temperatures encountered in washing with hot water, or were otherwise unsatisfactory, were rated "Not Acceptable."

BEST BUYS

Juice-O-Mat (Rival Mfg. Co., Kansas City, Mo.). $4.39 and $4.79. All metal construction. Gear pressure type. Good design and workmanship. Different prices were for different models of the same type.

Juice King J.K. 25 and J.K. 30 (National Die Casting Co., Chicago). $4.95 and $5.95. All metal construction. Gear pressure type. Good design and workmanship. Different prices were for different models of the same type.

Juice Squeeze (Juice Squeeze Mfg. Co., St. Paul, Minn.). $4.35. All metal construction, lever pressure type. Design and workmanship fair. A bit stiff to use but not objectionably so.

ACCEPTABLE

(In estimated order of quality)

R.Z.A. (R.Z.A. Mfg. Co.). $12.95. All metal construction. Lever pressure type. Easiest juicer to use. Excellent design and workmanship.

Juice King DeLuxe-D11 (National Die Casting Co.). $9.95. All metal construction. Gear pressure type. Excellent design and workmanship.

Kitchen Queen. $8.95. All metal construction. Lever pressure type. Good design and workmanship.

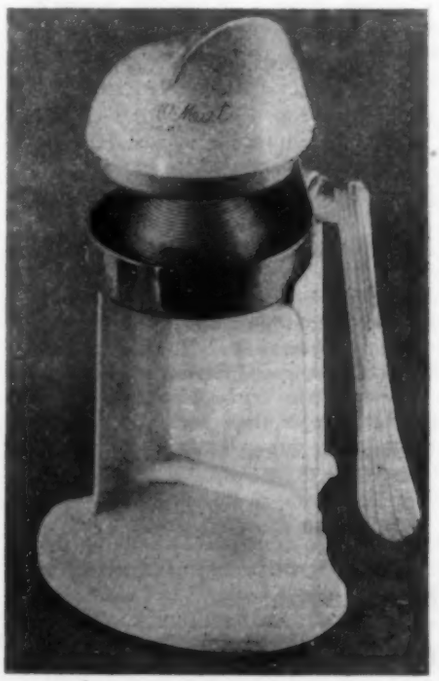
Juice-O-Mat (see "Best Buys").

Juice-O-Mat Vogue (Rival Mfg. Co.). $5.98. Metal stand with plastic cone and cup which was slightly distorted after only three minutes exposure to water at 145° F. Distortion did not affect action of juicer and plastic tended to retain original shape.

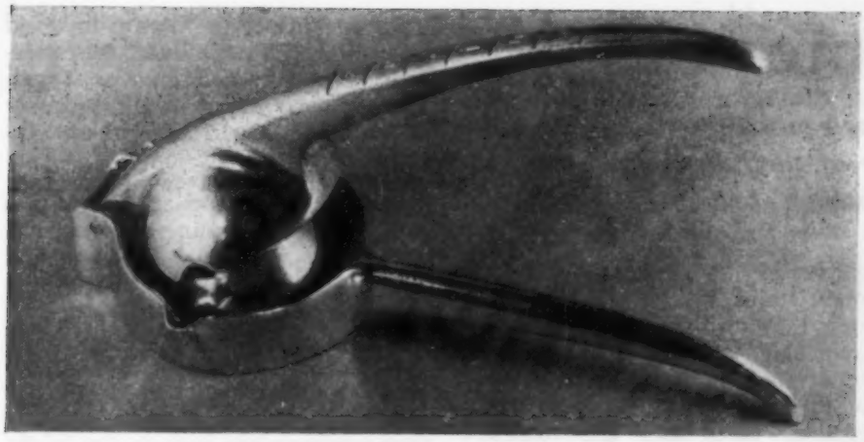
Juice King (see "Best Buys").

Juice Squeeze (see "Best Buys").

Kitchen Prince. $3.95. All metal construction. Jaw pressure type. Good design and workmanship.



The Juice-O-Mat, a gear-crush juicer, presses the orange down over a cone.



The Ebaloy, a "Not Acceptable" pressure type juicer, was found too difficult and messy for general use.

Wear Ever (Aluminum Cooking Utensil Co., New Kensington, Pa.). $3.25. All metal construction. Jaw pressure type. Good design and workmanship.

Universal (Landers Frary and Clark, New Britain, Conn.). $3.25. All metal construction. Jaw pressure type. Good design and workmanship.

Dazey Plastic Super Juicer Model 100 (Dazey Corp., St. Louis). $3.15. All plastic except for wall bracket and axle. Reamer type with handle on bottom which turned reamer. Good design and workmanship.

Mason Wall Model Juicer (L. E. Mason Co., Boston). $3.29. All metal construction. Reamer type with handle on side to turn reamer. Good design and workmanship.

Mason Table Model Juicer. (L. E. Mason Co.). $4.39. Similar to wall model except for stand in which juicer fits. Either wall or table model could be used with stand or wall bracket.

The Dazey Juicer removes the juice with a reaming action.

Dormeyer Model 3100 Electric Juicer (Dormeyer Corp., Chicago). $14.50. All metal construction except for saucer which was porcelain. Reamer type with motor turning reamer. Fruit somewhat difficult to hold against reamer because of speed and vibration.

NOT ACCEPTABLE

(For reasons stated)

Juicerette with Konvakup. $2.98. Metal stand with plastic cone and saucer made in one piece. Juicer small. Holes at back of saucer for straining. Design such that juice overflowed after one medium-sized orange was squeezed.

Juice Press. $5.35. All metal construction. Flimsily made. Connecting arm between eccentric and pressure cup bent with pressure needed to extract juice from one medium-sized orange.

The Big Squeeze. $5.95. All metal construction. Pressure applied by lever arm. Cone was in shape of a low reamer with sharp ends. Top pressure cup has flat surface with a small opening to accommodate the reamer. Pressing down on orange caused reamer to cut through rind without extracting more than about half the juice. Very poorly designed.

Handy Andy Juicer. $1.79. All metal construction. Reamer type with the reamer stationary. Handle turned a cup with prongs in it, which held orange in place. If fruit was not held correctly, part of fruit got no reaming action.

Gilbert Electric Juicer. $15.50. Juicer turned too fast to permit orange to be held securely against reamer. Much juice was wasted in this way.

Ebaloy. $2.69. All metal construction. Juicer consisted of two arms, one holding pressure cup, the other holding the saucer and cone. With the orange in the juicer, the handles were too far apart for use. Use resulted in sideslipping and spilling of juice. Poorly designed.

Preliminary Washing Machine Report

As this issue of the *Reports* goes to press, testing work on 20 washing machines has been completed, and the data are being checked and studied and a report prepared for publication. Those who can manage to wait for the February *Reports,* carrying detailed information on the subject, before they buy a machine are urged to do so. But for the many who, for one reason or another, must buy—or at least get on waiting lists—at the earliest possible moment, CU presents the following preliminary information. It should be kept in mind, however, that the listings are somewhat tentative, and that further check may result in changes.

AUTOMATIC WASHERS: Only the *Bendix* was available in time for these tests (other automatic washers are now being tested). The only difference between the regular ($219.50) and the DeLuxe ($239.50) is in the external cabinet. These machines were poorer than the average ordinary washer in ability to clean clothes, but they caused less than average wear on clothes. Important limitations to the use of the *Bendix* are that the machine must be bolted to the floor, and that it uses more hot water than many home heaters can supply. Despite its disadvantages, its automatic features make it a good buy for many families.

SPINNER TYPE WASHERS: The *Easy* ($169.95) was slightly better than average in cleaning ability, but also caused more than average wear on clothes. The wash tub and the spinner dryer were separate parts of the same unit, and clothes had to be shifted by hand from one to the other.

WRINGER-TYPE WASHERS: The *Norge* ($113.95 without pump; $133.99 with pump) had the highest cleaning ability of all machines tested, and caused only average wear on clothes. The *Blackstone* ($119.95 with pump) cleaned clothes slightly less well than average, but also caused less than average clothes wear.

Spot Removers

They're all equally effective for removing grease stains, but many are unsafe because of their inflammability. Tests of 36 brands show which brands are safe.

The labels of many of the 36 brands of spot removers tested by CU chemists give long lists of stains which these products will remove. Most of the stains listed are grease, fat or oil in one form or another; and ordinary spot removers are useful in removing this type of stain. The claims that some products will remove *all* stains are, however, misleading, since no such panacea for stained fabrics has yet been developed.

CU reports here on spot removers only. Dry cleaning fluids sold in bulk for cleaning entire garments are considered "Not Acceptable" for home use, since home dry cleaning is invariably dangerous. There is the risk of injury from toxic fumes or of fire from highly inflammable vapors. The use of spot removers presents similar hazards but on a proportionately smaller scale, since they are used in much smaller quantities.

TYPES OF SPOT REMOVERS

Noninflammable spot removers are generally carbon tetrachloride, trichloroethylene or similar chlorinated hydrocarbons. Six of the seven brands tested in this group were carbon tetrachloride; the other — *Du Pont Dry-Clean*—was trichloroethylene. These compounds are not inflammable, but the prolonged breathing of the vapors — and they are highly volatile—can cause serious injury.

Inflammable and Combustible. The New York City Fire Department distinguishes between "inflammable" and "combustible" materials, and has different label requirements for each. An "inflammable" product is defined as one which can be ignited by a spark when its temperature is below 100° F.; those which ignite above 100° F. are considered "combustible." Spot removers made of gasoline, benzine and similar solvents are inflammable under this definition; those made of Stoddard solvent—a petroleum naphtha manufactured principally for commercial dry cleaning use—are combustible.

Although both inflammable and combustible dry cleaners will remove grease stains satisfactorily, CU considers the inflammable products "Not Acceptable" because of the fire hazard involved in their use. Combustible products have been rated "Acceptable" since they are relatively safe when used in small quantities with ordinary care.

Many Stoddard solvent products are sold for home dry cleaning as well as for spotting, and are put up in ½-gallon to 2-gallon containers. CU does not recommend the purchase of spot removers in such large quantities because of the fire hazard involved in their storage. Since home dry cleaning is not considered safe under any circumstances, combustible products packaged in sizes larger than one quart have been rated "Not Acceptable." Only two of the eight brands of Stoddard solvent tested were packed in containers a quart or less in size.

Semi-inflammable spot removers are mixtures of noninflammable and combustible or inflammable solvents. The proportions of the different solvents vary in the different brands, but the result is a liquid which will not burn at first. However, since the noninflammable solvent is usually more volatile than the inflammable component, it tends to evaporate first, leaving an inflammable residue. Since under normal use conditions, the evaporation rate is fairly slow, the semi-inflammable solvents were judged "Acceptable." Thirteen of the 36 brands tested fell into this category.

Stoddard solvent is much less volatile than "inflammable" solvents and ignites at much higher temperatures. It is less hazardous for home use; nevertheless, it should never be used in the presence of an open flame because there is danger from fire. Though used mainly in commercial dry cleaning or sold in bulk for home dry cleaning, it is also used for spot removers. Only two of the eight brands of Stoddard solvent tested were sold in quantities of a quart or less. These were rated "Acceptable." The others were rated "Not Acceptable" because of the hazard involved in storing such large amounts of combustible mixtures. Moreover, a gallon of spot remover would probably be enough for a lifetime of spot removal.

Powders. CU shoppers bought two brands of dry cleaning powder, one, *Janie Spot Eraser*, in a compressed stick form. These products, which consist of inert compounds such as talc or Fuller's earth, remove spots by absorbing grease and oil. They are odorless and they leave no ring if carefully brushed out. Furthermore, they are harmless both to the fabric being cleaned and to the person doing the cleaning. Their disadvantage lies in their limited cleaning ability. They remove *fresh* oil or grease stains fairly well, but do not do as good a job as the solvent type spot removers on old stains.

Tests for "flash point" were made to distinguish degree of inflammability of each of the spot removers. The "closed cup" apparatus, shown above, is used to determine flash points of such volatile liquids.

Special Spot Removers. CU shoppers purchased two brands of lipstick stain remover—*Spectrol* and *Klink*. Both these brands were considerably more expensive than ordinary spot removers, selling for 14.5¢ and 12.5¢ per fluid ounce, respectively, as compared with 1¢ to 7¢ an ounce for satisfactory general spot removers. Both brands did a much better job of removing lipstick from white wool cloth than did carbon tetrachloride, trichloroethylene, Stoddard solvent or the semi-inflammable mixtures. This is because ordinary spot removers act primarily on the greasy lipstick base, and remove color only incidentally. Special solvents are required to remove the bulk of the pigments or dyes used to give color to the lipstick. *Klink*, though it worked well enough, is "Not Acceptable" because of its extreme inflammability. There was no caution regarding this on the bottle, and a folder which came with one bottle actually said, "Klink is noncombustible." *Spectrol* was of the combustible class, and it was so labeled.

PRECAUTIONS

CU advises that you purchase noninflammable spot removers if they are available. If these are used in small amounts and in well-ventilated places, they are reasonably safe. If you can find only semi-inflammable or combustible products, follow these simple precautions to insure maximum safety:

1. Limit use to a small area of fabric at a time.

2. Work in a well-ventilated shady spot away from all flame including the pilot light on the gas stove. It is safer to work on a humid day than on a dry day, to reduce danger of fire from static electricity.

3. Use only a very small amount of fluid at a time. Don't pour the cleaner into an open dish; dampen your cloth directly from the bottle.

4. Do not buy the spot remover in large quantity. Properly used, a little goes a long way, and storing large amounts means running unnecessary risks.

5. Keep the container stoppered except when it is in actual use.

6. Avoid containers which are likely to tip over or break easily. Wide low containers, preferably of metal, are best.

Since spot removers are fat solvents, they will dissolve the natural oil from the skin. Washing and drying the hands, and applying lanolin or other emollient cream immediately after using a spot remover will help counteract the drying effect.

HOW TO CLEAN

Removing spots from a garment that is generally soiled is a waste of time; instead of a noticeable grease spot, you will have a clean spot which will be just as noticeable. A fresh stain is easier to remove than an old one, and ironing a stained garment may "set" the stain and make it practically impossible to remove.

Removing a grease spot from an otherwise clean garment may be a worthwhile procedure. Here are some tips on how to go about getting good results:

1. Since neither all fabrics nor all dyes can "take" spot removal, it is wise to try the solvent on some inconspicuous part of the garment—the hem or an inside seam—before going to work on the spot. Go through the entire routine and allow the "test" spot to dry before deciding whether it is safe to proceed.

2. Place a clean blotter or some other absorbent material under the stain to be removed.

3. The cloth used in applying the spot remover should be similar in material to that being cleaned and should itself be clean. If similar material is not available, any clean, absorbent white cloth will do.

4. Work quickly, using only a small amount of cleaner at a time. Always work in straight lines covering an area larger than the spot being removed and keep rubbing lightly until there is no clear line between the moistened spot and the surrounding area. Never apply spot remover with a circular motion.

5. Remove the last traces of solvent by rubbing with a dry cloth and hang up the garment, preferably in the open air.

6. If the first "spotting" is not successful, go through the same procedure again, using a clean section of the blotter and a clean cloth.

If the original stain was made with a greasy emulsion containing water (cold cream or mayonnaise, for example), there may be a watering remaining after the grease has been removed. Try these two methods for removing such rings:

1. Rub the material against itself, then rub the edge of the stain lightly with your fingernail or the edge of a spoon or a coin.

2. Hold the ringed area over the steaming spout of a tea kettle which has first been covered lightly with a small piece of cheesecloth. Then shake the fabric dry and press it.

HOW CU TESTED

All the spot removers were first tested for "flash point" to determine the hazard of inflammability. Those which were "inflammable" (flashed below 100° F.) were rejected as "Not Acceptable," and no further tests were done on them.

The other spot removers were tested for approximate composition, grease spot removal, and residual odor left by the spot remover. The special lipstick stain removers, as well as the other types of stain remover, were tested for ability to remove lipstick.

The "flash point" and approximate composition determined the category into which the spot remover should be placed.

To determine effectiveness for grease spot removal, a drop of a mixture of mineral oil and hydrogenated fat was placed on the center of a 6-inch square of white woolen cloth, and allowed to "set" for 64 hours. All the brands examined did a satisfactory job of removing the test grease spot.

To test for residual odor, five drops of each spot remover were dropped onto a piece of white wool cloth which was allowed to hang free. The cloth was examined at intervals up to five hours. With none of the brands tested was there any odor after five hours.

A thin layer of lipstick was smeared on a glass slide and a fingertip area of white wool cloth was touched gently to the lipstick. Neither carbon tetrachloride, trichloroethylene, Stoddard solvent, nor a semi-inflammable mixture did a very good job of removing the lipstick stain.

In the following ratings, the brands are listed in four categories, based on degree of inflammability. CU considers those which were "Inflammable," and those sold only in quantities larger than a quart "Not Acceptable" for home use. No spot remover is safe for quantity use for home dry cleaning, and they are safe for spot removal only if used with the precautions indicated above.

CONTINUED NEXT PAGE

Noninflammable

ACCEPTABLE

The following were noninflammable carbon tetrachloride or tricholorethylene. They will not burn or explode, but their vapors are toxic. Use out-of-doors or with very good ventilation. Avoid prolonged inhalation of the vapor. Listed in order of increasing price per fluid ounce (the figure in parentheses).

Milo Dry Cleaner (Marshall Field & Co., Chicago). 50¢ for 1 pt. (3.1¢). No label statement as to volume.

Larkin Dry Clean-It Cat. No.—826 (Larkin Co., Buffalo). 33¢ plus postage for 8 fl. oz. (4.1¢).

Du Pont Dry-Clean (E. I. Du Pont Nemours & Co., Wilmington, Del.). 40¢ for 8 fl. oz. (4.1¢).

Swanky Dry Cleaner (Chemical Specialties Co., NYC). 89¢ for 1 pt. (5.6¢). No caution against inhaling vapors or using with adequate ventilation.

Carbona Cleaning Fluid (Carbona Products Co., NYC). 25¢ for 4 fl. oz. (6.3¢).

Elkay's Klens-All (United-Rexall Drug Co., Boston). 25¢ for 4 fl. oz. (6.3¢).

Mallinckrodt Carbon Tetrachloride (Mallinckrodt Chemical Works, St. Louis). 69¢ for 1 lb. (10 fl. oz.). (6.9¢).

Progress Report

Work on the following reports, among others, is either now under way or scheduled to begin soon:

- Cameras
- Washing Machines
- Electric Refrigerators
- Vacuum Cleaners
- Electric Toasters
- Pressure Cookers
- Mechanical Pencils
- Garden Seed
- Soap Substitutes
- Contact Lenses
- Auto Accessories
- Baked Beans
- Scouring Powders

Semi-Inflammable

ACCEPTABLE

The following were mixtures of various inflammable petroleum solvents and noninflammable solvents such as carbon tetrachloride in varying proportions. They do not burn when first opened, but they tend to become inflammable if exposed to air for a long time. Their vapors are toxic. Listed in order of increasing cost per fluid ounce (the figure in parentheses).

Co-op Cleaning Fluid (Eastern Cooperative Wholesale, Inc., NYC). 29¢ for 1 pt. (1.8¢).

De Luxe Cleaning Fluid (Boyle-Midway Inc., Jersey City, N. J.). 10¢ for 4 fl. oz. (2.5¢).

Speedup Non-Inflammable Spot Remover (American Stores Co., Philadelphia). 23¢ for 8 fl. oz. (2.9¢). No caution against inhaling vapors.

Maid of Honor Spot Remover Cat. No.—6504 (Sears, Roebuck). 24¢ plus postage for 8 fl. oz. (3¢).

Ever Blum Cleaning Fluid (D. Blum & Co., NYC). 50¢ for 1 pt. (3.1¢). Claimed to remove lipstick but did not.

Justrite Non-Inflammable Cleaning Fluid (Walgreen Co., Chicago). 29¢ for 8 fl. oz. (3.6¢).

Aimcee Spot Remover (Associated Merchandising Corp., NYC). 29¢ for 8 fl. oz. (3.6¢). Labeled "inflammable mixture" but did not "flash" even at 160° F.

Energine Fireproof Cleaning Fluid (The Cummer Co., Div. of Sterling Drug Inc., Brattleboro, Vt.). 35¢ for 8 fl. oz. (4.4¢).

Afta (Afta Solvents Corp., NYC). 75¢ for 1 pt. (4.7¢).

Difficult Stains (D. Blum & Co.). 75¢ for 1 pt. (4.7¢).

Tavern Spot Remover (Socony-Vacuum Oil Co., NYC). 39¢ for 8 fl. oz. (4.9¢).

Nacto Fabric Cleaner Spot Remover Perfumed (Nacto Cleaner Corp., NYC). 45¢ for 8 fl. oz. (5.6¢). No caution against inhaling vapors.

TexTone Fabric Cleaner and Spot Remover (Solvex Products Corp., NYC). 25¢ for 4 fl. oz. (6.3¢).

Griffin Quick Cleaning Fluid (Griffin Mfg. Co., Brooklyn). 23¢ for 3¼ fl. oz. (7.1¢).

Stoddard Solvent

ACCEPTABLE

The following were Stoddard Solvent cleaners. They are safer than naphtha, but should not be used in the presence of a flame. Listed in order of increasing cost per fluid ounce (the figure in parentheses).

Renuzit French Dry Cleaner (Radbill Oil Co., Philadelphia). 29¢ for 1 qt. (0.9¢).

Safe Way Cleaning Fluid (Safe Way Chemical Co., Cleveland). 10¢ for 3 fl. oz.(3.3¢). Misleading labeling: one side of label says, "Don't risk your life with cheap cleaning fluids which often cause fires and explosions. Safe Way Cleaning Fluid is safe." The other side says, "Caution: Combustible Mixture."

NOT ACCEPTABLE

The following are not recommended for use in the home. They are sold only in bulk. They were all Stoddard Solvent and present a fire hazard when stored in large quantities. In alphabetical order. Figure in parentheses is cost per fluid ounce.

A-penn Home Dry Cleaner (A-penn Oil Co., Butler, Penna.). 53¢ for 1 gal. (0.4¢).

Aunt Sue's French Dry Cleaner (Penn Champ Oil Corp., Butler, Penna.). 98¢ for 2 gal. (0.4¢).

Daizee Water Repellent and French Dry Cleaner (Daizee Products Co., NYC). $1.50 for 1 gal. (1.2¢).

Magic French Dry Cleaner and Spot Remover (Whelco Products, Inc., NYC). 65¢ for 1 gal. (0.5¢). Not to be confused with **Magic "Certified"** below.

Speedup French Dry Cleaner (American Stores Co.). 55¢ for 1 gal. (0.4¢).

Zeen Dry Cleaner (Zeen Chemical Co., Cleveland). $1 for ½ gal. (1.6¢).

Inflammable

NOT ACCEPTABLE

The following are not recommended for use in the home. They burn too readily, many of them explosively. Listed in alphabetical order. Figure in parentheses is cost per fluid ounce.

Bleecker's Easy Cleaning Fluid (Bleecker Co., Hempstead, L.I., N.Y.). 55¢ for 8 fl. oz. (6.9¢).

Justrite Cleaning Fluid (Walgreen Co., Chicago). 23¢ for 10 fl. oz. (2.3¢). Not to be confused with **Justrite Non-Inflammable Cleaning Fluid** above under "Acceptable."

Magic "Certified" Cleaning Fluid (Barnell Laboratories, Los Angeles). 11¢ for 1 pt. (0.7¢).

Mufti Dry Cleaner (Mufti Co., Div. of Plough, Inc., NYC). 30¢ for 5¾ fl. oz. (5.2¢).

N.B.C. Dry Cleaner (Cuneco Drug & Chemical Co., Detroit). 49¢ for 1 qt. (1.5¢).

Premier Cleaning Fluid (Universal Co., Los Angeles). 11¢ for 1 pt. (0.7¢).

Spotex Dry Cleaner (Spotex Laboratories, Chicago). 35¢ for 1 pt. (2.2¢).

Automobile Jacks

Whether you select a bumper jack or an axle jack, a hydraulic, a scissors-type or a screw-up, should depend on the make of your car. But in any event, you'll want one that works smoothly and safely. Tests of 34 brands show which are best.

During the war, the Society of Automotive Engineers prompted several key newspapers to question readers on what sort of postwar car bodies they wanted. A space left for write-in comment was frequently filled in at white heat with demands for better jacks, and better working conditions for their use.

After examining and testing 34 automobile jacks, CU can report that a utopia for jack users is still a long way off. There are three main conclusions: (1) If you want to elevate a wheel directly, by jacking under spring or axle, with an *axle jack*, you will still have to get down on your face to do it. (2) If you wish to proceed by jacking the body up with a *bumper jack*, so high that it drags a wheel up after it, a short engineering course may help you avoid disaster. (3) Any great amount of confidence on your part that jack designers will turn out a good jack for you will be misplaced.

For example, the *Lift King* is advertised—". . . lifts 1½ tons—4 times more than required on the average car." A rear corner of the 1947 *Studebaker* would place just about 750 pounds on the jack; but the *Studebaker* is not "average" weight, it is the lightest car currently in production, except for the *Crosley*. In CU tests, the *Lift King* began actually to break up under a load of 2600 pounds. And the *Saginaw* jack, says the advertising, ". . . . will handle 2000 pounds, although the average car puts only 500 pounds weight on a jack." *Saginaw's* mythical average car would weigh 1800 pounds—half a ton less than the *Studebaker*! (The *Saginaw*, too, was damaged by a 2600-pound load.)

The *axle jacks* purchased by CU were of two types: "scissors" or expanding-link jacks, which draw two corners of a quadrilateral together, lifting the car on a third; and direct-lift jacks—either screw-up or hydraulic—which raise a post or column with the car on top of it. Since the jacking point—generally the spring pad or axle—on a modern car with a tire flat is usually less than eight inches from the ground, the scissors jack, which is only 4½ inches or so high to start with, and which goes up to 14 inches, dominates the axle-jack field. Direct-lift jacks can't, as a rule, go both that low and that high.

Bumper jacks are practically a necessity with some new cars. Axle jacks are useless on these, since the rear fenders come down over the wheel so far that the wheel cannot be removed (or tire chains fitted) unless the body and axle are first drawn away from each other, as happens when a bumper jack is used. Bumper jacks may lift by screw-up or ratchet motions, or hydraulically. The hydraulic type is the most popular at the present time—and the most expensive.

Bumper jacks furnished as original equipment on postwar cars are somewhat stronger than the prewar accessories, and their use is a little less hazardous. The *Buick* jack, for example, spans the bumper support bar, so that the jack cannot slip sidewise. The *Oldsmobile* and *Studebaker* jacks have a dowel on the hook of the jack which engages a hole in the underside of the bumper, thus positioning the jack.

UNDER-AXLE JACKS

The best under-axle jack is the straight-lift hydraulic, such as the *Hein-Werner*, *Cogswell* or *Meco* listed below. But do not rush out to buy one. First of all, with these or others of the type, you will—for the handles are short—not only have to lie down; you will probably have to crawl under the car to get them into position and work them. (On late model cars the axle or jacking point may be 3 or 4 feet from the front or back of the car.) Secondly, you must be sure that these jacks will fit under a jacking point on your own car—axle, spring pad, the spring itself—*with the tire flat*, and that from this point they will lift the wheel enough for the tire to be changed or chains applied. On many late model cars, they won't do this, especially in front. (You *can* get the jack underneath if you drive up on to the spare wheel first.) Theoretically, a straight-lift screw-up jack, like the *Sears* number, with its telescoping threaded posts and range of 5½ to 12½ inches could be used even on low cars. But unless the jack is very precisely made—which the sample was not—stability will be poor.

This leaves the "scissors" type of jack for consideration. Besides its wide range, this type has—or can have—two other good features: (1) A handle long enough to obviate the need for the user to crawl under the car, by which the jack can be manipulated into place and withdrawn, and (2) A top broad enough so that precise positioning, which is very difficult at eye level, is not necessary.

The effort required to raise a car with a scissors jack depends on the arrangement of its links, the type of screw thread (a square or Acme thread should be used, but only two of the scissors jacks had it), the number of threads—or turns of the handle—per inch of motion (more turns give easier action) and finally, on the lubrication. Most scissors jacks will sustain more weight than they can lift; several samples were not able to raise 1600 pounds.

BUMPER JACKS

The advantage of a jack which picks the car up by its bumper is

It's a long reach to place an under-axle jack under most modern cars. Shown above, the Hein-Werner hydraulic ($7.95).

obvious—it can be placed and operated from a standing or kneeling position. Furthermore, the low flat-tire axle height and long overhang of late model cars, in combination with the limited capacity of scissors jacks, leaves only the bumper type available for many cars. Ratchet type bumper jacks are now original equipment on most new cars.

But bumper jacks, however well made, are unsafe unless they are very carefully manipulated. Successfully tilting the 3000 pound sprung mass of a heavy car two and a half feet in the air and supporting it by a 7/8th inch rod placed on slanting ground should qualify anyone for a rigger's certificate.

Most bumper jacks pivot on their bases, and these are usually made of inexpensive pressed steel with a dimple, or socket, in the middle. Pivoting is logical theoretically, since the jacking point travels in an arc as the car is raised, or the jack may be used on slanting ground. But CU's experiments showed that jacks with rigidly attached bases gave the elevated car better stability and less teeter, even when set on uneven ground or at an angle. The base must, however, be strongly made and attached, and this raises the cost of the jack.

WHAT IS A GOOD JACK?

When a car is empty, the rear half is usually lighter than the front. If you therefore put one front wheel of your car on a platform scale, you would expect the scale reading to give the maximum load your jack will have to lift. With most cars, this reading runs from 700 to 1500 pounds. As you jack, however, the weight on the jack increases by as much as 20 percent so that the jack must actually handle from 850 to 1800 pounds (not allowing for other weight in the car). This weight will be increased or decreased if the car is on ground sloping toward, or away from, the jack.

A good jack is one that will handle this weight without difficulty, and will provide reasonable stability when up. Furthermore, a good jack should *stay* up, without slip or creep, until you let it down—with full control of the lowering process all the way.

That sounds simple, until you try to buy a jack that will do it.

If you are using a bumper jack now on which the rod bends into an arc under the load, CU's advice is, throw it away. It may whip out of position without warning, with the slightest movement of the car, and cause serious injury.

In well-run auto repair shops no one is allowed to work under a jacked-up car until sturdy horses or blocks have replaced the jacks. Protect your own safety by the same rule.

RAISING THE CAR

CU's suggestions for jacking-up procedure, below, can and should be modified by your own experience and by any specific (and valid) instructions from the maker of your car or jack. The instructions assume that you merely want to change a wheel, and they leave out such trick methods as driving up onto the spare wheel to begin with.

1. FIND A SAFE PLACE TO WORK. Get completely off the road if you can (on most parkways you must), even though you run an even chance of further damaging the tube or casing by doing so. (Universal use of drop center rims, plus the vulnerability of synthetic tires and tubes, makes damage to the tire almost unavoidable if the air is lost completely before the car stops.) Your personal safety is, however, worth more than an inner tube or tire.

2. ANCHOR THE CAR. Set the parking brake, but don't depend on it. Do not fail to block the two wheels at the other end of the car, back and front of each wheel. Blocks that are wedge-shaped or follow the general wheel contour are best.

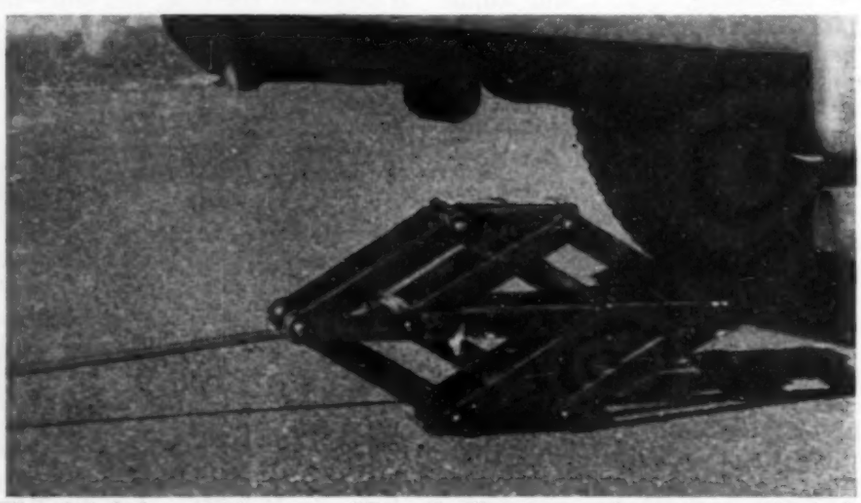
3. ASSEMBLE MATERIALS FIRST. While the wheel is still on the ground, get out spare tire, jack, tire wrench and all other equipment you will need. Take off the hub cap, and loosen the cap screws or nuts that hold on the wheel from a half to one turn each.

4. PLACING THE JACK. With an *under-axle* jack, select as low a jacking point as possible. See that the jack will raise vertically, and that the wheel support arm or the axle will not slide off the top of the jack as it pivots in rising. With a *bumper jack,* set the hook just outside a bumper guard, or on older cars under the bumper supporting bar. The jack should be placed to rise vertically (not necessarily at right angles to the ground).

5. RAISING AND CHANGING. Jack slowly, watching for any slipping or change in lean. When the tire is raised to a semi-inflated position, remove the cap screws or nuts. Continue jacking only until the wheel can be removed with little effort. (Often it will fall off by itself.) Immediately roll the spare wheel alongside the hub, and continue jacking only until bolt holes line up; then the spare can be warped across the ground into position with a minimum of lifting or pushing. (Pushing is the thing most to avoid.) Screw the cap screws or nuts in finger tight, and lower the jack part way. Tighten cap screws or nuts with wrench, remove jack and blocks, put on hub cap, heave a sigh of relief, and pack up.

HYDRAULIC vs. MECHANICAL

Says an advertisement ungrammatically, "When you need a jack bad, you need it good." Between times, the jack lies in the back of the car, subject to rough treatment or neglect. Hydraulic jacks tend to leak, which may keep them from rusting but if much fluid is lost they won't raise the car. Leaking began



The Chieftain, at $6, was a "Best Buy" among scissors-type axle jacks.

on many hydraulic jacks tested by CU as soon as they were used. On some of the hydraulics sampled—particularly *Super DeLuxe E-Z*—the bleeder valve is very easily damaged.

Hydraulics require special oils, and the packing glands usually require special tools for tightening. Half the samples tested carried no instructions for refilling.

Mechanical jacks are subject to corrosion and damage. If they are kept well oiled, they are as messy as hydraulics. And plenty of lubrication is essential to keep down the operating effort with such screw jacks as the *Simmons*, or jacks of the scissors type. An oily jack collects dirt and the oil dries to gum, which may cause troube, especially on the small parts of ratchet-lift jacks. (The rods of friction jacks such as the *Drednaught* must be kept free of oil, or the jacks will slip.) Among bumper jacks, the *Saginaw* received the experts' vote as cleanest and most storable.

Despite the smooth raising and lowering action of most hydraulic jacks—their chief virtue—CU recommends a good screw-up bumper jack — only *Simmons*, *Snyder* or *Saginaw*, among those tested—as preferable to most hydraulics. The latter are, however, preferable to the remainder of mechanical bumper jacks tested, although only a fixed-base hydraulic would outrank the *Walker* and *Snyder* mechanical jacks from the stability standpoint. A direct-lift hydraulic, *provided one will work under your car*, probably outranks the majority of scissors jacks for those who don't mind generous contact with Mother Earth.

FLAT-TIRE TRUCKS

Along with its collection of jacks, CU tested two "emergency flat-tire trucks" intended to support a wheel with a flat tire while the car is driven to the nearest point of repair. Use of these trucks or dollies presupposes (a) a hard-surfaced road all the way, and (b) a very slow driving speed. Neither the *NoJaX* (Cello Products Corporation, East Boston, Mass., $17.50 when bought) nor the *Sav-a-Tire* at $19.98 was entirely satisfactory.

In any case, the weight (*NoJaX*, 31 lb.; *Sav-a-Tire*, 23 lb.), bulk and low tire-life of these devices, in combination with their limited usefulness and high cost, definitely makes them "Not Acceptable" for most motorists.

The *Sav-a-Tire*, which had two fixed wheels and one castering wheel, was the easier of the two to drive into; it followed well on curves, and showed very little tread wear on its solid rubber tires. Used under a rear wheel, it came off repeatedly as soon as backing up was attempted, and it slipped out from under the car wheel while climbing a six percent grade. During test under a front wheel at 20 miles per hour over surfaced roads, the front tire of the *Sav-a-Tire* came off its wheel after it had been driven 4½ miles, rendering the device useless.

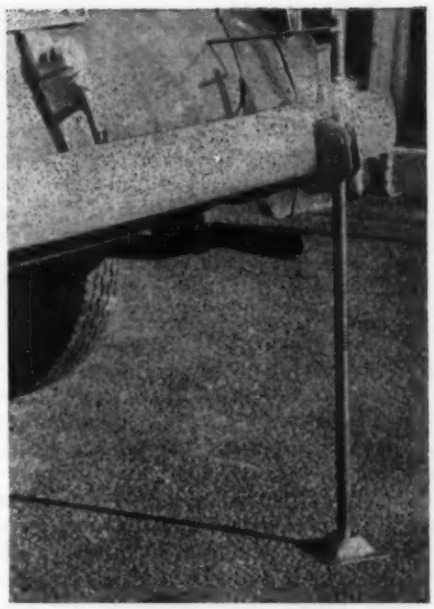
The *NoJaX*, with four fixed wheels, was harder to drive onto than the *Sav-a-Tire*. It was noisier in operation, required considerable effort to take around curves, and showed more tread wear on its tires. *NoJaX* stayed on better than *Sav-a-Tire* when the test car was backed up—and this would be true in either direction under adverse conditions. However, on the six percent grade test hill, the rear wheel climbed out of the *NoJaX*, and at the end of five miles at 20 miles per hour, its tires showed considerable wear and were separating from their rims.

CU's auto consultant points out that devices of this type could be useful chiefly to the motorist who commutes over parkways, bridges, viaducts or other urban arteries where tire changing is particularly hazardous, jams traffic, or is forbidden. The Port of New York Authority, however, does not allow their use on its facilities.

HOW CU RATED THE JACKS

All of the jacks covered by this report were tested under actual working conditions to establish their stability and ease of control, the effort required to raise one wheel of an average car to tire changing position, and their general suitability as influenced by their design. In judging the jacks, CU made the assumption that, since a passenger car jack will rarely be worn out by use, readiness for use, safety, certainty of operation, and resistance to leakage or deterioration were of major importance.

In addition, the jacks were given an overload test, which is referred to in each rating. Scissors jacks were required to raise (or attempt to raise) a 1600-pound load (equivalent to the weight of a corner of a car weighing approximately 5000 pounds, with allowance for the 15 to 20 percent increase in load which takes place with all cars and jacks as the weight is lifted). Road weight of a 1946 *Buick* is about 4200 pounds.



Among mechanical bumper jacks, the Simmons E-Z Lift, which cost $1.74, was outstanding in quality and value.

Bumper jacks, which will usually be relied on for raising the heavier cars, were tested with a 2600-pound load, representing roughly a total car weight of 8000 to 8400 pounds. Road weight of the heaviest 5-passenger *Cadillac* is about 5000 pounds. Jacks which were damaged by this test but remained operable were generally rated as "Acceptable," their weaknesses being noted in the ratings.

The five top-ranking scissors jacks and all bumper jacks undamaged by the 2600-pound test were also given crush tests in the laboratory to see how they would behave under loads running up to 5000 pounds, representing a reasonable factor of safety. The jacks were not required to raise these loads, merely to sustain them, in compression, and to operate afterward. Only six jacks out of 16 tested could pass this 5000-pound test.

Hook design is very important in a bumper jack. The load should be carried as close as possible to the barrel or rod of the jack, to prevent bending. This was the outstanding feature of the *Simmons*, and was also designed into the *Hein-Werner* and *Saginaw* bumper jacks.

While no clamped-on hooks slipped on the 2600-pound test, CU experts feel that the pin-and-rack type (used on *Hein-Werner*, *Royal*, etc.) is safer on the whole. Safest of all is, of course, the screw-up jack, which is

slow, but can't leak or slip, is under full control while lowering, and is the least likely to be out of order when needed.

The variation from good to poor design was most noticeable among the scissors jacks. There were six different designs in the 10 jacks tested. The top of a scissors jack should be flat, the base turned up like a toboggan at both ends, and wide in proportion to its length. The pivoting links which give the jack its name, should preferably be of ¼-inch material rather than ⅛-inch, as some were. If the pins on which the links pivot are not carefully riveted, stability will be poor or effort increased; this is a very important feature, but hard to judge without a trial of the jack. A square thread (the proper type for moving something rather than fastening it) was judged not necessary, though advantageous. Maneuverability with the common right-angle engaging handle was only slightly more difficult than with the special attachments offered by *Berg* and *Big Boy*. All ten jacks were equipped with similar ball thrust bearings. Threads were 10 to the inch unless otherwise noted. Jacks which passed the 5000-pound compression test are so indicated in the ratings, all of which are in estimated order of quality within each type group.

Scissors-Type Jacks

BEST BUY

Chieftain #433 (Chieftain Products Co., Rochester, N.Y.). $6. Very good design and sturdy construction. One-piece 46-in. handle with right-angle engaging end. Stability good. Effort less than average when lifting 1600-lb. load. Passed 5000-lb. compression test. Toboggan-shaped base, 6.75 x 3.2 in. Lift, 5 to 14.2 in. Top, flat pressed steel, 3.2 x 5 in. Weight 18.5 lb.

ACCEPTABLE

(In estimated order of merit)

Chieftain #433 (see "Best Buy").

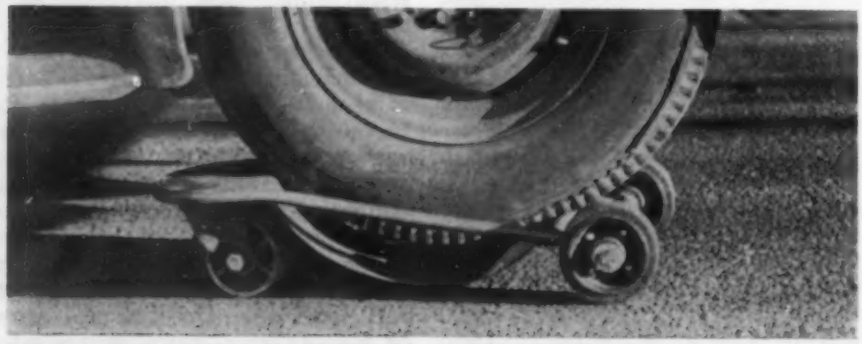
Big Boy Scissors Jack (Dalton Foundries, Inc., Warsaw, Ind.). $5.95. Good standard design and construction. One-piece 47.5-in. handle with T-head locking in slot in jack. Stability good. Fairly difficult to operate with 1600-lb. load. Passed 5000-lb. test. Toboggan base, 3.5 x 7 in. Lift, 4 to 14.5 in. Top, pressed steel, 1.5 x 5.25 in. Weight 14 lb.

Master Mite Jack (A. & B. Sales Corp., Hillside, N.J.). $7. Neat, original design, light construction. Folding 57.5-in. handle, angle engagement. Stability, slightly below average. Easy and quick action with normal load; operation with 1600-lb. load fairly difficult. Passed 5000-lb. test. Lift, 5 to 13 in. Flat pressed steel base, 3.5 x 6 in. Top, pressed steel, 2.9 x 3 in. Square threads, 6 to the inch. Weight 11.5 lb.

Berg Shur-Lift (Berg Mfg. & Sales Co., Chicago). $6.95. Standard design and good construction. Folding 62.5-in. handle with lock-on fork worked fairly well. Only handle with bit-brace style crank, a good feature. Stability good. Operation with 1600-lb. load fairly difficult. Toboggan base, 7.25 x 3.75 in. Lift 4.5 to 14.5 in. Pressed steel top, 2.5 x 5 in. Weight 17.5 lb.

Gotham Expansion Jack (Gotham Products Corp., Brooklyn). $5.98. Sturdy standard design and construction. Handle, one-piece, 47.5 in., with right-angle engaging end. Stability good. Acme thread, 8 per inch. Effort in raising 1600 lb., hard. Flat cast base, 4 x 7.6 in. Lift 4 to 14.5 in. Flat cast top, 3 x 5.75 in., with nonskid serrations. Capacity stated as 4800 lb. Weight 16 lb.

Walton Jack. $4.95. Unorthodox, light all-pressed steel construction. One-piece 49-in. handle with right-angle engagement. Stability average. Effort less than average, especially on 1600-lb. load. Thread, 15 per inch, gives easy but slow action. Lift, 6 to 12 in. Pressed steel base, hourglass shape, 8 x 5 in. Flat pressed steel top, 3 x 4.25 in. Weight 9 lb.



Sav-A-Tire: a good idea, but not entirely satisfactory. (Tests were, of course, made with car tire flat.)

Note: range limited, barely sufficient even when lifting starts from closed position of jack; may not work under all cars.

Globe (Strauss Stores, New York). $5.95. Below average construction, standard design. Handle, one-piece 47.5 in., with right-angle engagement. Stability below average. Effort fairly difficult very difficult on 1600-lb. test. Good cast toboggan base, 3.5 x 7 in. Lift, 5 to 15.5 in. (Samples varied). Flat cast top 3 x 5.5 in. Weight 14 lb.

Ceco Rol-E-Z (Cargo Equipment Co., Brooklyn). $7.50. Heavy unorthodox construction. Handle, one-piece 46.5 in., right-angle engagement. Stability very good. Leverage is less than with normal construction, resulting in hard action with normal load, and 1600-lb. load could not be raised. Base, pressed steel, toboggan front, flat at rear, 3.5 x 13.5 in., is hard to maneuver without upsetting jack. Top, rounded pressed steel, 1.5 x 10 in., receives less support as jack is raised. Weight 15.5 lb.

Sears Scissors Jack (Sears, Roebuck & Co.). Sent by Sears as substitution for Cat No.—28 G 01234. $4.50. Standard design, skimpy construction. Two-piece 50-in. handle with a tendency to telescope while maneuvering jack. Stability, average or below. (On soft ground, below average.) Did not pass 1600-lb. test and required great effort to lift normal load. Lift, 5 to 14 in. Pressed steel base, 5 x 7 in., but with large cutout areas. Pressed steel top, 2 x 5 in., undesirably rounded. Weight 11 lb.

Fisher Scissors Jack. $5.95. Unorthodox construction; rear trunnion rises as jack goes up, causing interference between handle and car chassis. Stability below average. Effort, hard—too hard to pass 1600-lb. test. Handle, one-piece 46 in., of insufficient strength. Base, flat plate, 5 x 6.75 in. Top, 1.75 x 5 in., with inserted nubs contributing to instability.

Direct-Lift Axle Jacks

ACCEPTABLE

(In estimated order of merit)

HYDRAULIC

Hein-Werner Hydraulic model E1.7F (Hein-Werner Motor Parts Corp., Waukesha, Wisc.). $7.95. Capacity stated as 1½ tons. Instructions for use and refilling. Range, 7⅛ to 12¼ in., plus 2-in. screw-up extension. Base, 3¼ x 5½ in. Weight 8 lb. Operates with pumping action. Handle turns bleeder valve to lower. Handle has extension which is not usable if jack is under car owing to lack of room. Passed 5000-lb. compression test. Like others of this type, can not be used under many modern cars. The threaded extension does not, of course, in-

crease the lift, merely the height at which lifting can start.

Cogswell Hydraulic Jack model CHJ-1 (Cogswell Mfg. Co., West Springfield, Mass.). $8.95. Placard states "Capacity 2-Ton" with note as to filling level. Operates with pumping action. Considerable lost motion in pump linkage. Handle operates bleeder screw to lower. Lift, 7¼ to 12¼ in. Base, 3¼ x 6 in. Weight 8 lb. See comment under **Hein-Werner** regarding usability.

Meco Hydraulic 2-Ton (March Engineering Co., Oshkosh, Wisc.). $11.95. Base, round, 5 in. diameter. Weight 9½ lb. Lift, 9½ to 14¼ in. Pump at base operated by short detachable handle. Lower by turning bleeder valve. A well-made jack, but extra height and small range make it even more difficult to place under modern cars than others in group.

Sears Roebuck Under-axle Jack, Cat. No.—28 G 1248 (Sears, Roebuck). $1.35 plus postage. Base, pressed steel, 3¼ x 4½ in. Range, 5½ to 12½ in. Weight 4½ lb. This is a mechanical screw-up jack with telescoping threaded posts. Low height and great lift make it usable on many cars. Operating effort, average. Stability at maximum height, poor because of loose fit of parts. Has 38-in. crank handle and 1½-in. cup-shaped cap. Passed 1600-lb. test, but not strong enough for heavy cars.

Note: The **Cogswell** and **Meco** jacks were not tested to 5000 lb., but design and construction appear equivalent in strength to **Hein-Werner.**

Hydraulic Bumper Jacks

BEST BUY

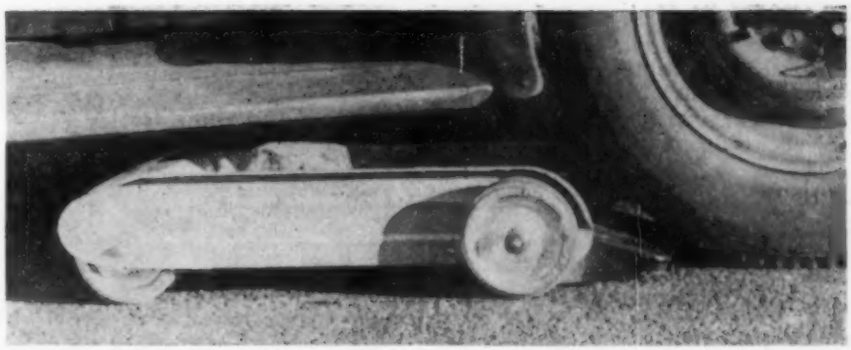
Hein-Werner Bumper-Lift, model V-120 (Hein-Werner Motor Parts Corp., Waukesha, Wisc.). $9.95. Packaged with wood blocks cut from 2 x 4 in. lumber; placarded with instructions for use and refilling. No capacity stated. Fixed base (casting) 3¾ x 6½ in. Height 20¼ in. Lift 16¾ in. Weight 18.5 lb. Malleable cast rack for adjustment of hook is attached to top cap of jack. Hook, casting. Operated by pumping handle; pump located at base. Lowered by turning bleeder valve with handle. Capably designed and solidly built. Passed 2600- and 5000-lb. tests.

ACCEPTABLE

(In estimated order of merit)

Hein-Werner Bumper-Lift (see "Best Buy").

Super Deluxe E-Z (Philip H. Buehrle & Son, Inc., Spotswood, N.J.). $12.95. Telescoping bumper jack with oscillating pump at top. Cast base, pinned to rod of jack (motion in one plane only). Cast bronze hook, clamp-on type. Bleeder valve on side vulnerable to damage. Exterior packing nut at foot of column. Height 29 in. Base 3⅛ x 5½ in. Lift 16½ in. Weight 11 lb. Passed 2600-lb. test without damage. A well-made high-grade jack.



NoJax, another emergency flat tire truck, was harder to drive onto and harder to drive than the Sav-A-Tire.

Meco Hydraulic Tractor-Lift (March Engineering Co., Oshkosh, Wisc.). $16.95. Essentially a tractor jack; lifts either on top cap, like an axle jack, or on a hook adjustable along a rod parallel to the lifting post and supported from the top cap. A second hook, with loop of wire cable, is also supplied for picking up very low loads. Height over-all, 21 in. Lift, 21 to 34.5 in. on cap; 5.5 to 19.5 in. on hook, and 0 to 14.5 in. on loop. Base cast integral with jack, 5.5 in. square. Weight 18 lb. Packed in sturdy bag with booklet of instructions. Operation by oscillating pump at base. Lowered by bleeder at base. Effort required, average. Packings adjustable with wrench. Was tested on hook only, since there is little chance of using the top cap to lift any passenger car. Passed 2600-lb. test without damage.

Hydrojack (Associated Foundries & Mfrs., New York). $8.95. Telescoping hydraulic, with reservoir at top and transverse oscillating pump with detachable handle. Lowered by bleeder at pump. Clamp-on cast hook. Base is cast, circular, 5 in. diameter, attached but swiveling. Height, 30 in. Lift, 16¼ in. Weight 9 lb. The bleeder valve on this jack forms part of the pressure cylinder and can be screwed completely out if carelessly handled. The transverse pump is a little awkward. This jack, though light, raised 2600 lb. with fairly easy effort and behaved well on other tests.

Allstate Hydraulic Bumper (Sears, Roebuck). Cat. No.—28 G 1247. $8.45 plus postage. A sturdy telescoping hydraulic, with exposed pump at top working axially—like the handle of a tire pump. Lowered by depressing handle into notch in top. Height, 31 in. Base, pressed steel, with dimple, separate from jack, 5.5 in. square. Clamp-on pressed steel hook. Lifted 2600 lb. with extreme effort. Difficulty in depressing pump against pressure to lower, and lowering control poor under this load. (Jack functioned easily at lower loads.) The jack barrel bent slightly in the 2600-lb. test, but jack remained operable.

Royal Bumper Jack (Vulcan Mfg. Co., Winona, Minn.). $6.75. Telescoping type, with axial pump under telescoping sleeve at top (a common pump arrangement permitting use of a very small diameter pump rod with consequent ease of operation). Lowered by turning pump sleeve clockwise past screwed-down position. Height, 32.5 in. Base, pressed steel, separate, 4 in. square. Hook, cast iron loop surrounding barrel. Pin on loop engages in holes in pressed steel rack welded to barrel. Lift, 16 in. Weight 7 lb. In spite of being bent early in the tests when a car fell off of it, this jack gave good performance, though it did not pass the 5000-lb. test because the rack gave way. Lifted 2600 lb. with considerable effort.

Lift King Hydraulic Jack (Zamax Mfg. Co., Haverstraw, N.Y.). $10. Instructions printed on jack. Telescoping type with axial pump (similar to **Royal**), and bleeder valve on side of barrel. Height 32 in. Base, attached but swiveling, pressed steel, 5.1 in. diameter. Hook, pressed steel; adjustment by moving pin in welded-on rack, similar to **Royal**. Lift, 16.5 in. Weight 9 lb. Lifted 2600 lb. with medium to hard effort; rack was crushed, but jack remained operable.

Pacemaker (Pacemaker Products Co., Jersey City, N.J.). $7.95. Telescoping hydraulic with reservoir, oscillating pump and relief valve at top. Height, 29.5 in. Pressed steel swiveling base, 4.5 x 6 in. Lift, 14.5 in. Pressed steel hook clamps on by bolt and nut, requiring use of wrench. Weight 9 lb. Very light construction throughout. Leaked excessively throughout the tests, but raised 2600 lb. with medium effort.

Liftmaster (Metmaco, New York). $8.98. Practically identical with **Lift King** except for hook design. Telescoping type, axial pump. Bleeder on side.

Height, 32.5 in. Pressed steel swiveling base, 5.1 in. diameter. Heavy pressed steel clamp-on hook. Lift, 16.5 in. Weight 10 lb. Lifted 2600 lb. with medium effort, but barrel bent at the hook, rendering further operation difficult.

Ticomatic "500" (Tudor Industries Corp., Scranton, Penna.). $15.95. Telescoping type, with reservoir at top, transverse pump with detachable handle, and thumbscrew bleeder valve. Height, 28 in. Base, flat pressed steel, welded to bar, 4 x 6 in. Hook of laminated pressed steel links attached to a loop formed of bar stock. The loop surrounds the barrel, engages notches in a bar fastened to the barrel by pressed steel clips. (There is also a sliding shim under the hook to distribute pressure along the barrel, and the whole design is exactly as cumbersome as it sounds.) Lift, 17 in. Failed on the 2600-lb. test because of bending, causing the jack to lock. Operable on normal load but fairly difficult and with some bending. Weight 15 lb.

NOT ACCEPTABLE

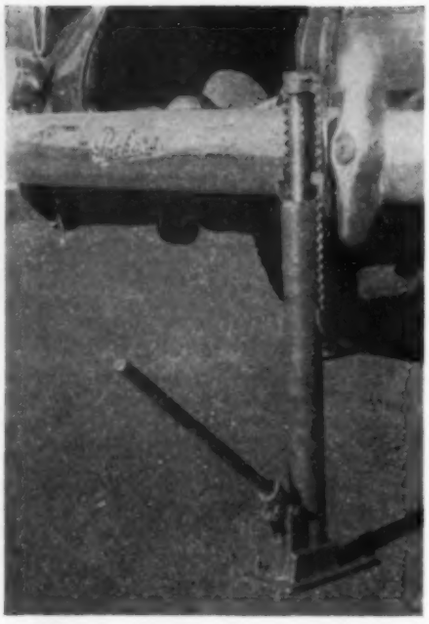
Franklin Hydraulic Jack (A. Patrick Co., Distributor, Westwood, N.J.). $10.75. Telescoping type, with axial pump at top. Instructions on tag. Height, 35 in. Lowered by turning pump sleeve past closed position. Base, attached but swiveling, 3 x 3.5 in., casting. Hook is casting, clamp-on type. Lift, 16 in. Weight 13.5 lb. Base too small. Lowering under normal load erratic. Hook of one sample broke under 2600-lb. load.

Hydrolift Hydraulic Bumper (Hydrolift Corp., Rockville Centre, N.Y.). $7.95. Telescope type, axial pump under sleeve at top. Height 31 in. Base, pressed steel, attached and swiveling, 5 x 5 in. Hook of first sample was pressed steel, clamp-on type. Second sample had cast hook, clamp-on. Weight 10 lb. Hook on first sample was improperly formed, would not hold. Paint flaked off before jack was put in use. Shut-off valve on second sample was not functioning properly, and jack drifted down under normal load. (Note that with this type of pump, the shut-off valve is not accessible for adjustment.)

Mechanical Bumper Jacks

BEST BUY

Simmons E-Z Lift (Sears, Roebuck). Cat. No.—28 E 1227. $1.74 plus postage. Made by Simmons Mfg. Co., Div. Wacker Corp., Ashland, Ohio. Consists of a pressed steel hook mounted on a trunnion, through which passes a threaded steel bar. Turning the bar on its pressed steel base raises and lowers the car. The bar has a square thread and an outer diameter of .87 in. A handle is provided. Height, 34 in. Lift, 24 in. Weight 6 lb. Very good hook design, simple, and safe. Operation is slow—about 1.5 minutes to set and raise a car, 1 minute to lower. Operation fairly difficult but the 2600-lb. test load was raised without adding an extension to the handle. This jack passed the 5000-lb. compression test with ease. Provided this jack is properly placed and well-lubricated, it will do an excellent job, and cannot get out of order.



A good value in hydraulic bumper jacks was the $9.95 Hein-Werner.

ACCEPTABLE

(In estimated order of quality)

Simmons E-Z Lift (see "Best Buy").

Snyder Bumper Jack, Type Delux (Snyder Jack, Inc., Philadelphia). $6.95. Screw-up type, with worm operating inside telescoping steel sleeves. Load carried on ball thrust bearing. Height, 24 in. Hook is cast iron, adjusted for height by a set screw entering a series of holes in the elevating sleeve. A reversed hook, for clamping down the top of the bumper is also provided. Base, welded to jack, steel plate, 5 x 5 in. Lift, 19.5 in. Weight 15 lb. Crudely made and slow in action, with awkward handle. Provided excellent stability when up. Effort, medium—hard on 2600-lb. test. Sloppy workmanship and odd construction, but essentially a good jack.

Saginaw Recirculating Ball (Saginaw Steering Gear Div., General Motors Corp., Saginaw, Mich.). $9.35. Screw-up jack with ball thrust bearing at top and recirculating ball bearing in hook. Hook rides in and bears upon a slotted steel tube. Height, 35.25 in. Cast hook. Lift, 25.75 in. Tube fits in 2-in. deep socket in detachable built-up pressed steel base, 6 x 8 in. Weight 13 lb. Good stability and easy action with normal load. Effort became very hard on 2600-lb. test, and the tube bent outward at either side of the slot where the hook bore on it. Neat design, but material too light. Clean jack to carry.

Walker Bumper Jack #647 (Walker Mfg. Co., Racine, Wisc.). $5.49. A ratchet-type jack of liberal dimensions, operated by pump handle motion along a notched rectangular steel rack. Handle detachable. Height, 34 in. Pressed steel built-up base, with 2-in. deep socket, detachable, 6 x 8 in. Hook, pressed steel, spot welded to case. Lowered or raised after setting small lever to position desired. Weight 12 lb. Stability good. Effort, average on normal loads, very hard on 2600-lb. test. Very similar to some original equipment jacks furnished on 1946 cars. Many users—as well as CU's consultants—feel that ratchet-type jacks lower trickily, with poor control. Small parts, springs, etc., are apt to corrode with time and become inoperative.

Sears Ratchet Bumper (Sears, Roebuck). Cat. No.—28 G O1224. $2.69 plus postage. A light jack of the same general type as **Walker**, above, but with separate, pressed steel swivel base, 5.5 in. square. Operated by pumping action of handle (detachable), with up or down setting by small lever. Hook, pressed steel, spot welded to case of jack. Rectangular pressed steel bar of smaller section than **Walker**. No bending in use, but stability is that of any swiveling jack. Effort, average—hard on 2600-lb. test. Weight 7 lb. See comment on mechanism under **Walker**, above.

Spunsteel Bumper Jack $2.39. A screw-up jack with two telescoping screws, operated by horizontal oscillating handle. Screws rise from a cast sleeve mounted on a pressed steel base 4 x 6 in. Height of jack, 12 in. Lifts to 28 in. Load carried on 1.25-in. round top cap, grooved for edge of bumper (probably would not fit all bumpers). To lower, reverse ratchet setting. Stability, fair, but in use, jack tends to bind as car goes up, causing hard operation. Operation slow. Passed 2600-lb. test. Very poor design of cap, and telescoping-screw principle questionable for use as a bumper jack.

NOT ACCEPTABLE

(For reasons stated)

Drednaught Friction Bumper (Auto Specialties Mfg. Co., St. Joseph, Mich.). Ward's Cat. No.—61 B 1606 M. $1.98 plus postage. Experience indicates that friction-type action becomes unreliable in time, as the bar roughens. Lowering control is very poor. Hook design poor, resulting in bending of rod on normal loads.

Allstate Friction Jack (Sears, Roebuck). Cat. No.—28 E 1239. $2.29 plus postage. Similar in design and operation to **Drednaught** above.

The Sinuses

Colds may lead to acute, then chronic sinusitis. No sure cures are known, but there are means of prevention and relief.

Man has been afflicted with sinus trouble ever since "cold" germs and viruses invaded this globe. Many persons who suffer from chronic sinus disease have the impression that sinus treatment is no better now than it was in man's antiquity, particularly if they have run the clinical gamut of drops, steam inhalators, vaccines, tampons, irrigators, etc., and come out with nose still stuffy or dripping.

The discovery of sulfa drugs and penicillin has opened a new path in the treatment of sinus disease. But, although many cases of sinusitis (inflammation of the sinuses) have undoubtedly been helped by sulfa drugs and penicillin, doctors and patients have often been disappointed by their ineffectiveness in relieving chronic sinus disease. The conclusion, which may as well be stated now, is that a quick and easy cure for sinus disease has not yet been found.

The nasal accessory sinuses are hollow compartments in the bones of the face and skull, which communicate through small openings with the nose. There are four pairs of sinuses: the *maxillary* (in the cheek bone), *frontal* (in the forehead just above the eyes), *ethmoid* (between the nose and eyes), and *sphenoid* (far back on each side of the nose).

The size of the sinuses varies from that of a marble to that of a small plum. Their communication with the nose makes it possible for a disease of the nose — for example, a head cold — to extend into and involve the sinuses. In the same way, infections of the throat and the back of the nose may extend into the sinuses and cause infection.

One reason for persistency of sinus infections is that the blood supply, which mobilizes the body's defenses to an area of infection, is less well developed in the sinuses than in the nasal cavity itself. Furthermore, it is easy for the small communicating openings from the sinuses to the nose to become blocked up by the swelling of the tissues. The swelling may result from allergic disorders such as hay fever, or from an acute infection such as a common cold. When these communicating openings are blocked, the sinuses are unable to drain properly, and pus and other secretions, if present, will not be expelled easily. If the germs are virulent and if the resistance of the individual is low, the infection may spread to neighboring areas, or may serve (in some cases) to act as a focus of infection to distant organs. In many cases, the stage may be set for a chronic sinus infection.

Since the treatment of chronic sinus disease, once it is established is so unsatisfactory, every effort should be made to prevent infection. Unfortunately, however, most cases of sinusitis start with a common cold, and, as is well known, there is no reliable means of preventing colds.

It is true that chilling cold or wet feet, and fatigue are common factors predisposing to the common cold. Avoiding contact with persons who have colds would be helpful, but such a course is generally impracticable, especially when one travels in streetcars, buses or subways every day. Emotional conflicts, tension, depression, frustration, repressed anger, etc., also predispose to colds (see *Reports* September 1946), but to state the fact is almost to confess impotence, for there is often too little we can do to control our emotions.

"Cold vaccines" have not been proved of value—and that goes for oral vaccines as well as those given by injection. Sun baths—natural or via a carbon-arc or mercury-vapor lamp—provide a healthful-looking tan, but they do not prevent colds even though some people will swear that they do. Others laud vitamin capsules, meat diets, vegetarian diets, cold showers, or "yogi" exercises. The degree of success depends, apparently, on the amount of faith or conviction associated with the "remedy," rather than on the "remedy" itself.

As far as treatment of a common cold is concerned, one remedy is about as good—or as futile—as another. Again, many people have their favoriate methods. Hot foot baths, hot drinks (lemonade, tea, toddies, etc.), and aspirin tablets have their sworn devotees and sometimes they do give a degree of comfort.

Complete rest for a day or more—especially if there is fever—is a sensible practice for helping prevent complications. Nose drops used in excess will do more harm than good. About three to five drops of a bland solution such as neosynephrine or ephedrine, two or three times a day, will probably do no harm and will temporarily relieve stuffiness which may be extremely unpleasant, especially in children. Too many nose-drop users flood their nasal passages with strong solutions such as *Privine*, or complicated mixtures such as *Mistol*, irritating the nose and spreading infection to adjacent sinuses.

The use of sulfa drugs in lozenges, gumdrops, nose drops, or as oral tablets is condemned by leading physicians as a treatment for colds. One risk in the use of sulfa drugs is the possibility of inducing sensitivity to them, thus making it hazardous to use sulfa preparations later, should they be needed in the treatment of a more serious infection. Furthermore, the doses of sulfa usually employed as cold "remedies" are often inadequate for the prevention of complications, though sufficient to cause development of drug-resistant strains of streptococcus, pneumococcus and other disease-producing germs. Thus, in subsequent infections by these germs, sulfa drugs will be of no help even when given in large doses.

Penicillin is less likely to produce allergic reactions or drug-resistant strains than are the sulfa drugs. Oral tablets and injections are useful for those who are prone to get troublesome complications. Penicillin lozenges should be avoided, as they do not appreciably affect sore throat, and they may cause severe mouth irritation.

Acute sinus disease may set in as a complication of a cold—usually about one to three weeks after the onset of the cold. Though no sure cures are known, much can be done to relieve distressing symptoms. Steam inhalations and the judicious use of nose drops may help drainage and relieve stuffiness or pain. If the germs causing the sinus infection happen to be responsive to sulfa drugs or penicillin, proper administration of these drugs may result in a complete cure. But not all cases respond to these drugs, and the acute sinusitis sometimes becomes chronic.

Self-treatment of chronic sinus disease with nose drops will, at best, result in a brief diminution of symptoms. Such nose-drop solutions as *Argyrol* and *Neo-Silvol* should be avoided because they are prone to cause "argyria"—a permanent slate-

like discoloration of the skin resulting from local deposition of silver salts. Irrigation of the nose with salt solution—according to directions of a physician—may help relieve congestion and discharge. Diathermy and X-ray treatment are of no proved value either for partial relief or cure.

Residence in a warm, dry climate will help only a very few sufferers. In most cases, climate plays very little part in either healing or preventing chronic sinusitis. Vaccines are also of no value. Nor will vitamins —from A to Z—prevent, relieve or cure sinusitis.

Many cases of chronic sinusitis have been cured by skillful management by a specialist in disease of the nose and throat. Sinus irrigations and similar methods of promoting discharge of pus through the sinus openings may sometimes produce permanent cure.

Operative treatment is often necessary to remove diseased tissue, restore normal air passages and anatomic relationships, and to promote continuous drainage from infected areas. While the results of sinus surgery may not be as dramatic as surgery in other areas of the body, many have obtained permanent relief.

The "displacement therapy" devised by Dr. Arthur Proetz often results in welcome relief, if not cure. In this procedure, medication is put into the nose with the head hanging down so that the medication can not flow out. Then by exerting gentle suction in the nose, the physician produces a vacuum in the sinuses. The medication in the nose then enters the sinuses as the air and secretions are displaced. This method is also used for instilling penicillin into the sinuses. A newer method of accomplishing much the same thing with penicillin is the aerosol technique of penicillin inhalation.

So far, the value does not appear to be greater than that of other techniques of penicillin administration, such as displacement, nor apparently as successful as injected penicillin.

A Tax Program

Cu presents some proposals for revision of the tax structure to make the tax load distribution more equitable.

Inflationary living costs have cut so deeply into the purchasing power of millions of families that they can no longer maintain their living standards at levels of health and decency. The growing shrinkage of purchasing power is undermining the basis for continued high level production and employment, thereby threatening to plunge the country into an economic depression in the not too distant future.

Every possible measure that can help slow down the inflationary spiral and cushion the effects of a depression—if one sets in—should be used by the Government at once. One of these measures is the immediate enactment of tax provisions designed expressly to bolster purchasing power. Decreasing the tax load of consumers in the low- and middle-income brackets would enable them, at least partially, to offset the sharply reduced purchasing power of their wages and salaries. Low- and fixed-income groups in particular require this indirect increase in take-home pay.

Tax policy, of course, cannot by itself halt the inflation spiral nor can it pull the country out of a depression if the economy goes into a tailspin. But Consumers Union believes that an emergency tax program designed to help maintain purchasing power is an essential part of the over-all program that must be developed and carried out to combat the double menace of inflation and depression. An emergency tax program is not a substitute for a general postwar economic program designed to assure capacity production and full employment. But effective tax measures enacted now to maintain purchasing power would mesh with the long-range tax policies that can be considered and adopted when the present emergency has been overcome.

The emergency tax program should be based on two principles: First, purchasing power of low- and middle-income groups should be maintained. Second, taxes should be levied in accordance with ability to pay. Both of these principles are violated by recent Congressional proposals for a 20% across-the-board cut in individual income taxes. On the surface, a proposal for a general tax reduction appears to be equitable. But examination of the concrete effects of the proposed 20% cut at various levels of income, reveals that it would favor the wealthy taxpayers at the expense of taxpayers in the lower and middle income brackets.

For example, under the proposal for a 20% across-the-board cut, a married man earning $3000 a year and having two children would have his taxes reduced by $27.40, or 53¢ a week. By contrast, the corporation executive receiving $100,000 a year would have tax savings of $12,460, or $239 a week. An individual with a million-dollar income would have tax savings of $167,770 or $3226 a week. At the million-dollar-a-year income level, the wealthy taxpayer would pay $7356 less in taxes after a 20% cut than he paid in the prewar year of 1939. The taxpayer with an annual income of $3000, on the other hand, would still be taxed, whereas he had no tax payment to make in 1939, since his total exemption at that time for his family of four was $3300.

These figures indicate that the 20% across-the-board cut would violate the principle of taxation in accordance with ability to pay. At the same time, it would not materially increase the purchasing power of the 70% of American families who earn less than $3000 a year. Consumers Union, therefore, urges the rejection of this grossly unfair proposal and recommends that the following measures be enacted by Congress:

1. HIGHER EXEMPTIONS

A minimum amount of income required to maintain a family's living standard at a level of health and decency should be exempt from the income tax. Higher exemptions would help restore some of the purchasing power that has been wiped out by the steep inflationary rise in the prices of food and other necessities of life. Application of the principle of a cost-of-living tax exemption in the lower- and middle-income brackets would be a step toward the realization of the goal of taxation in accordance with ability to pay.

As a first step, the exemption for single individuals should be raised from $500 to $1000, and for married couples from $1000 to $2000. The existing exemption of $500 for each child or other dependent should be retained. This would give a family

with two children an exemption of $3000, which is still less than the $3500 which the authoritative studies of the Heller Committee of the University of California show to be necessary to maintain a health and decency standard of living at the present time. Moreover, the prewar family exemption was $3300.

2. INDIVIDUAL INCOME TAX RATES

The rate on the first $2000 of taxable income should be reduced from 20% to 10%. The rate structure should then be graduated upwards, until it reaches the current rate at taxable incomes of $10,000. The present rate schedule should be continued on taxable incomes of $10,000 or more. The top income groups do not require increased purchasing power. A Federal Reserve Board study has revealed that in 1945 the top 10% of American families had 60% of the nation's personal liquid assets. Tax reductions for this top income group would only increase the amount of idle savings; it would not contribute effective purchasing power for bolstering the economy.

3. CLOSING LOOPHOLES

Loopholes in the income tax law make a mockery of the principle of taxation in accordance with ability to pay. The most flagrant example of tax avoidance is the exemption of large amounts of income from Federal, State and municipal securities. All income from such outstanding tax-exempt securities should be taxed at the regular rates, and the income from all future securities should be fully taxable.

Another major loophole is the option of filing separate returns. This option enables taxpayers in the upper income brackets to avoid carrying their full share of the nation's heavy tax burden. Mandatory joint family returns should be required to close this gap in the tax law.

4. TAX SPECULATION

The tax law has contributed to unbridled speculation in securities, farm land and real estate. Speculators have benefited from the provision which limits the maximum effective tax rate to 25% on long-term capital gains realized from the sale of securities and other property held for more than six months. A speculator who makes a million dollars from selling real estate held for six months—at inflated prices—thus pays a tax of only $250,000. If his income from dividends and other sources amounted to a million dollars, his tax would be $841,000.

To help curb speculation in real estate, securities and farm land, the holding period for long-term capital gains should be extended to 36 months, and the maximum effective rate should be raised to 50%.

5. TAXING CORPORATIONS

A powerful drive is being carried on by big business interests to eliminate or reduce taxes on corporations. The operations and the profits of the large corporations have not been hampered by the present 38% tax rate. Their profits in 1946 were at an all-time peak, and they will make even larger profits if the economy can operate at high levels. Abolition of the corporate tax would not only increase their already very large profits, but would make it necessary to replace the loss in revenue by adding still heavier burdens to the low- and middle-income groups.

Steps should also be taken against the unprecedented hoarding of undistributed profits by large corporations. From 1940 through 1945, American corporations made 53.5 billion dollars in profits after taxes. But only 25.9 billions were distributed as dividends while 27.6 billions were retained as undistributed profits. These undistributed profits are used as a means of tax avoidance by wealthy taxpayers. Less than one per cent of stockholders receive 60% of dividends, and wealthy taxpayers gain tax advantages when dividend payments are postponed. They are in high surtax brackets, and hence prefer to keep undistributed profits in corporate treasuries until leaner years to minimize tax payments.

The present provision in the tax law against "unreasonable" accumulation of undistributed profits is obviously ineffective since their volume is today at record-breaking levels. Congress should enact a tax on undistributed profits to end this means for tax avoidance and force out the huge accumulations of wartime undistributed profits. A steeply graduated tax on undistributed profits would provide revenue for the Government and curb a major tax-dodging device.

Small business, like small taxpayers, should receive tax relief so that its competitive position against monopolies is strengthened. A graduated tax, starting at 10% to 12% on the first $10,000 of net income, should be enacted, rising to the present 38% rate at $100,000 of net income. The current corporate tax rate should be retained on net incomes of $100,000 and over.

6. COOPERATIVES

Powerful monopoly groups are pressuring Congress to levy income taxes on cooperative rebates. Consumers Union urges Congress to resist this demand, which would hamper the work of bona fide cooperatives and leave consumers with no alternative but to pay monopoly prices. When cooperatives distribute rebates based on purchases to farmer and consumer members, there is no profit in the ordinary business sense.

7. EXCISE TAXES

Consumers Union believes that all efforts to impose a general sales tax should be opposed and defeated. A sales tax cuts into the effective purchasing power of the lower-income groups who must buy the bulk of American products if the country is to enjoy postwar prosperity.

Sales and most excise taxes are regressive levies, which fall far more heavily on low-income groups than on the upper income brackets. Consumers Union recommends that in 1947 Congress should move toward the eventual elimination of all Federal excise taxes, with the exception of those on liquor and tobacco. A first step should be the elimination or sharp reduction of excises on essential articles and services while excise taxes are maintained on luxuries and nonessentials.

Consumers Union recommends that these proposals receive the immediate consideration of Congress. They are not meant to be a comprehensive postwar tax program but are, rather, emergency measures to strengthen purchasing power, combat inflation and lessen the possibility of an economic depression. But all the recommendations would dovetail with fiscal and tax policies geared to maintaining high level postwar production, employment and purchasing power.

These recommendations constitute the minimum that should be done immediately in the field of taxation, to check the ruinous lowering of living standards. Enactment of these measures would strengthen the nation's last round fight against inflation and increase the effectiveness of other measures taken to assure a stable postwar economy.

CONSUMERS UNION

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